

National Grid SA-CO
PRODUCTION FILE

Contractor : ABB Contracting Co.

Project : SS 8709- 132/13.8kV in Alkha

Contract No : 11131113/00

Substation : 8709

**Subject : 132/13.8Kv Transformer GT-1
Relay panel-1**

ABB

National Grid SA-COA

PRODUCTION FILE

Contractor : ABB Contracting Co.

Project : SS 8709- 132/13.8kV in Alkharj City

Contract No : 11131113/00

Substation : 8709

**Subject : 132/13.8Kv Transformer GT-1 (+R05.2)
Relay panel-2**



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POWER SYSTEMS NETWORK MANAGEMENT
PROTECTION AND SUBSTATION AUTOMATION SYSTEMS
WBS NO: S-13656

ABB AUTOMATION COMPANY LTD.,
414, AL-KHARJ ROAD
SECOND INDUSTRIAL CITY
RIYADH-11383 K.S.A

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CONTRACTOR : ABB Contracting Company
CLIENT : National GridSA
PROJECT : CONSTRUCTION OF NEW 132/13.8kV SS 8709 IN AL-KHARJ CITY
SUBSTATION : S/S 8709
CONTRACT NO. : 11131113/00
TITLE : Assembly Drawing – +R05.1 [GT-1]



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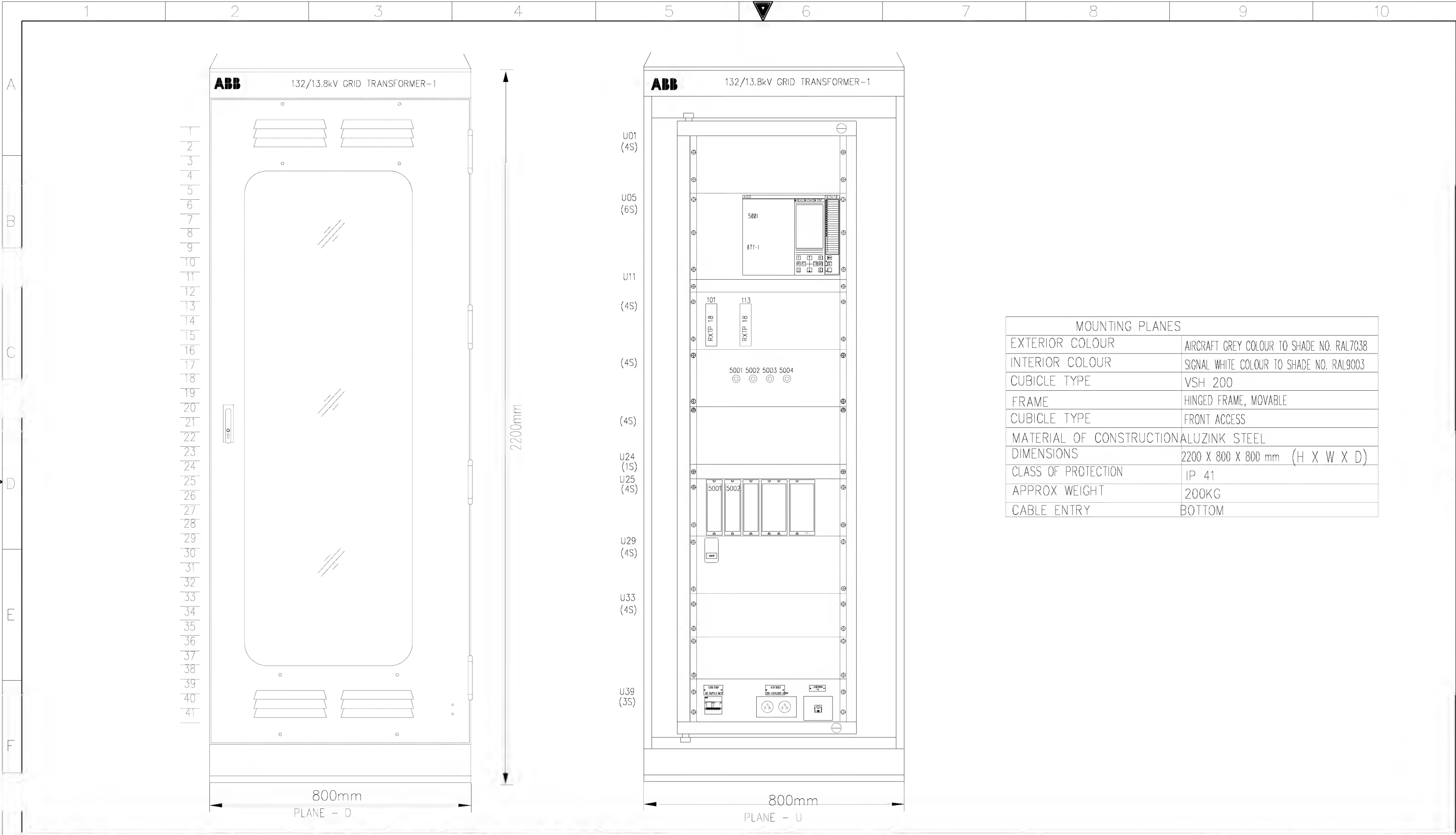
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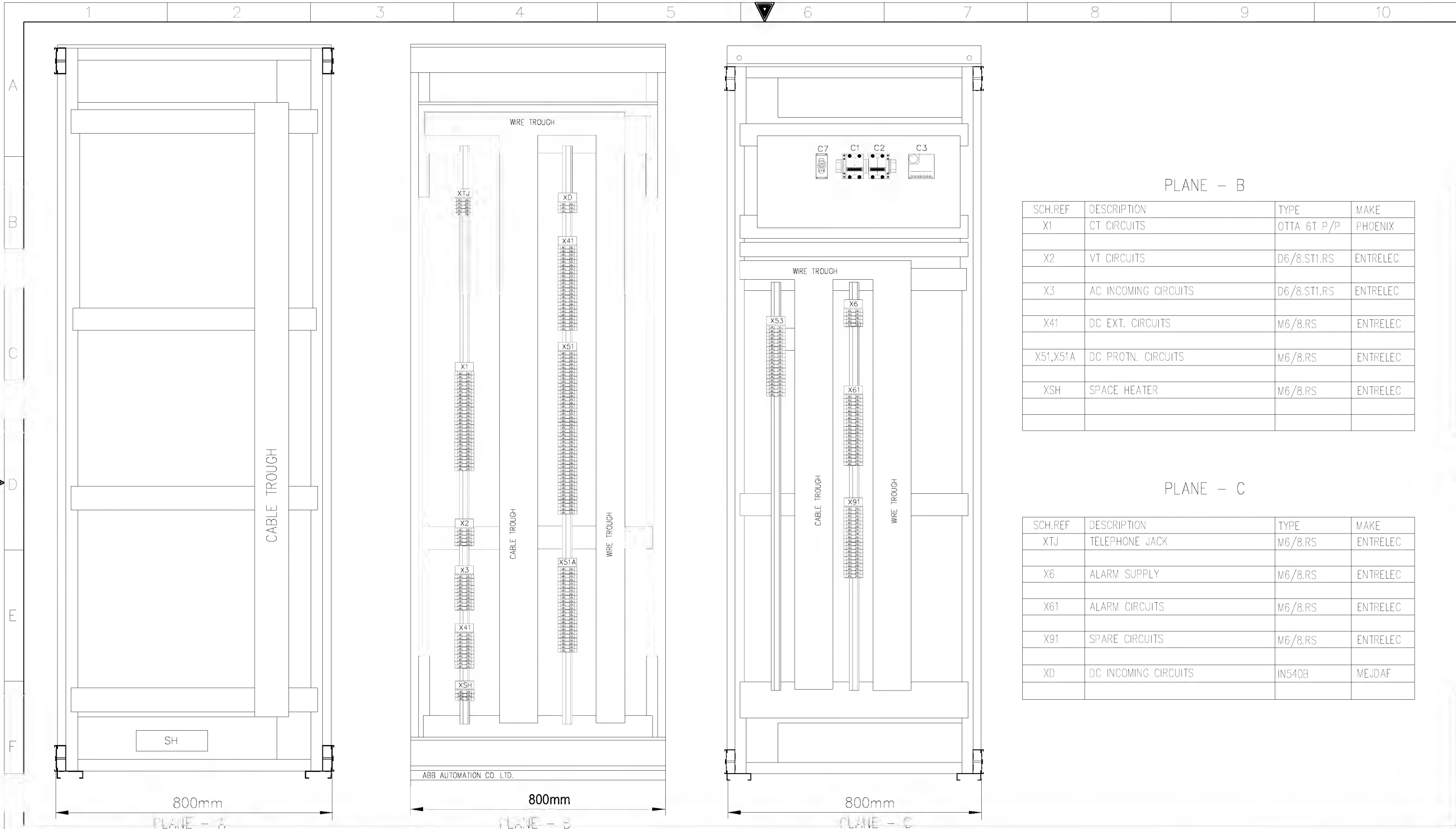
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AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		COVER SHEET		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>					
01	13 49	FACTORY ASBUILT	DRAWN BY RIZ			CHECKED BY JKR			132/13.8kV GT-1 RELAY PANEL-1 +R05.1					
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013			DATE COMPLETED _____			S/S 8709-132/13.8KV IN AL-KHARJ CITY					
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD			ENG. DEPT. AUT-PSAC			RIYADH		SAUDI ARABIA			





AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		ASSEMBLY DRAWING			<div>نقل الكهرباء</div> <div> الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>						
			DRAWN BY _____ RIZ _____ CHECKED BY _____ JKR				132/13.8kV GT-1 RELAY PANEL-1 +R05.1									
01 13 49 FACTORY ASBUILT			DATE STARTED 24.01.2013 DATE COMPLETED _____				S/S 8709-132/13.8KV IN AL-KHARJ CITY			INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
00 13 04 FOR APPROVAL			OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC				RIYADH SAUDI ARABIA			-	C421	CD-322926		SHT CONT.		01
REV. NO. _____ DATE _____ DESCRIPTION _____														G01 G02		



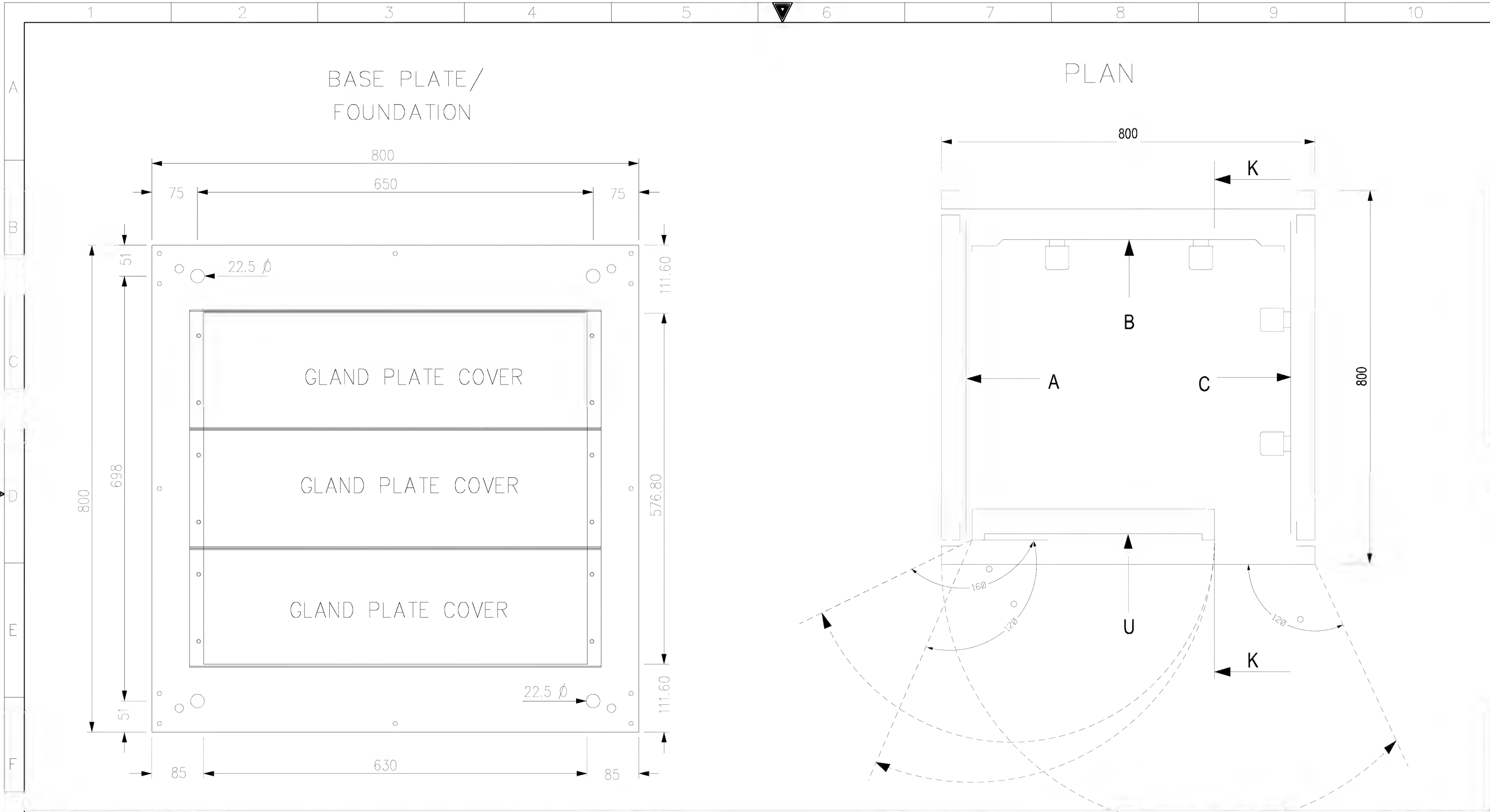
PLANE – B

SCH.REF	DESCRIPTION	TYPE	MAKE
X1	CT CIRCUITS	OTTA 6T P/P	PHOENIX
X2	VT CIRCUITS	D6/8.ST1.RS	ENTRELEC
X3	AC INCOMING CIRCUITS	D6/8.ST1.RS	ENTRELEC
X41	DC EXT. CIRCUITS	M6/8.RS	ENTRELEC
X51,X51A	DC PROTN. CIRCUITS	M6/8.RS	ENTRELEC
XSH	SPACE HEATER	M6/8.RS	ENTRELEC

PLANE – C

SCH.REF	DESCRIPTION	TYPE	MAKE
XTJ	TELEPHONE JACK	M6/8.RS	ENTRELEC
X6	ALARM SUPPLY	M6/8.RS	ENTRELEC
X61	ALARM CIRCUITS	M6/8.RS	ENTRELEC
X91	SPARE CIRCUITS	M6/8.RS	ENTRELEC
XD	DC INCOMING CIRCUITS	IN540B	MEJDAF

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		ASSEMBLY DRAWING		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>			
13 49			11 01 2013		RIZ		132/13.8kV GT-1 RELAY PANEL-1 +R05.1					
13 04			24.01.2013		JKR		S/S 8709-132/13.8KV IN AL-KHARJ CITY		INDEX			
REV. NO.			DATE		DESCRIPTION		OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		PLANT NO.	
01			13 04		FACTORY ASBUILT		RIZ		CD-322926		DRAWING NUMBER	
00			13 04		FOR APPROVAL		RIZ		SAUDI ARABIA		SHEET NO.	
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AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT
00	13 04	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION

DRAWN BY	RIZ	CHECKED BY	JKR
DATE STARTED	24.01.2013	DATE COMPLETED	
OPRG. DEPT.	CTPD	ENG. DEPT.	AUT-PSAC

ASSEMBLY DRAWING
132/13.8kV GT-1 RELAY PANEL-1 +R05.1
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		نقل الكهرباء	
National Grid sa		National Grid sa	
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.
-	C421	CD-322926	SHT CONT.
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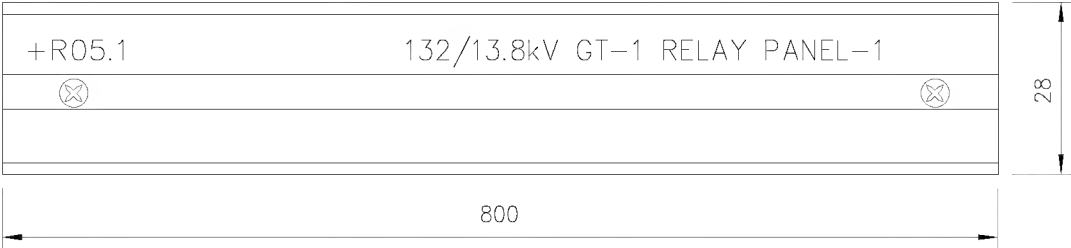
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TOP VIEW FOR EARTHING BAR

U PLANE TOP LABEL



U PLANE BOTTOM LABEL



MANUFACTURING LABEL

ABB
ABB Automation Co.Ltd.

PROJECT : National Grid SA
S/S 8709

ORDER REFERENCE : 2875 RF S13656

YEAR OF MANUFACTURE: 2013

PANEL NO. : +R05.1

DRAWING NO. : S13656-CD-323928





MADE IN THE KINGDOM OF SAUDI ARABIA

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

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00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

ASSEMBLY DRAWING
132/13.8kV GT-1 RELAY PANEL-1 +R05.1
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		National Grid sa	
INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	
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				REV. NO.	
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NG/D2-D (2012/01)

DMS VECTOR NGD200


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SR. NO.	GA REF.	SCH. REF.	D E S C R I P T I O N	SHEET NO.	QTY.	TYPE	MAKE	ORDERING INFORMATION
			RELAY CUBICLE- +R05.1 ACCOMODATING THE FOLLOWING					
1	U05.5001	87T-1	NUMERICAL TRANSFORMER PROTECTION IED WITH FOLLOWING DETAILS	301	1	RET 670*1	ABB	1MRK 004 816-DC
			FUNCTIONS					
			-CONFIGURATION ALTERNATIVE		1			1MRK 004 005-DC
			DOUBLE BREAKER, 3WINDING (B40) BASIC					
			-CONTROL					
			HARDWARE					
			-ANALOG SYSTEM					
			TRANSFORMER INPUT MODULE,RING LUG TERMINALS 91+3U,1A					
			110/220/V,50/60HZ/(TRM)(BASIC SELECTED ALTERNATIVE)LOCATION/P40/					
			TRANSFORMER INPUT MODULE,RING LUG TERMINALS 91+3U,1A					
			110/220/V,50/60HZ/(TRM)(BASIC SELECTED ALTERNATIVE)LOCATION/P41/					
			-CASING					
			POWER SUPPLY MODULE 90-250 VDC (PSM)					
			LOCATION P1/					
			NUMERIC PROCESSING MODULE 600MHZ, 256MB (NUM) BASIC					
			LOCATION/P30/					
			3/4\SX 19" RACK CASING MAX 5 I/O MOD,					
			2TRM (RACK)					
			COMBINED BACKPLANE MODULE MAX 5 I/O MOD.					
			(BASIC SELECTED ALTERNATIVE) 2TRM (RACK)					
			UNIVERSAL BACKPLANE MODULE 2 ADM,2TRM (UBM) BASIC					
			-CONNECTION TYPE					
			STANDARD COMPRESSION CONNECTION TERMINALS)					
			LOCATION/P1-P16					
			-HUMAN MACHINE INTERFACE					
			MEDIUM GRAPHIC HMI,15 CONTROLLABLE OBJECTS					
			3/4 X 19"IEC (MHMI)					
			-IN/OUT MODULES					
			BINARY INPUT MODULE LOCATION P3,P5		2			1MRK 000 508-BB
			BINARY OUTPUT MODULE,24 OUTPUT RELAYS (BOM)		2			1MRK 000 614-AB
			LOCATION P4					
			OPTICAL ETHERNET MODULE 2 GLASS INTERFACE IEC61850-8-1/IEC61850-9-2					1MRK 002 266-AA
			(OEM)(SELECTED OPTION) LOCATION P31:1					
2	U12.101	TS-1	TEST SWITCH FOR RET670 RELAY	222	1	RTXP18	ABB	RK 926 115-BH
	U12.113	TS-2	TEST SWITCH FOR RET670 RELAY	222	1	RTXP18	ABB	RK 926 115-BB

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS		الشركة الوطنية لنقل الكهرباء National Grid sa	
01 13 49 FACTORY ASBUILT			DRAWN BY RIZ CHECKED BY JKR		132/13.8kV GT-1 RELAY PANEL-1 +R05.1		S/S 8709-132/13.8KV IN AL-KHARJ CITY		INDEX PLANT NO. DRAWING NUMBER SHEET NO. REV. NO.	
00 13 04 FOR APPROVAL			DATE STARTED 24.01.2013 DATE COMPLETED _____		RIYADH SAUDI ARABIA		- C421 CD-322926		L01 L02 01	
REV. NO. DATE DESCRIPTION			OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC						NG/D2-D (2012/01) DMS VECTOR NGD200	

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SR. NO.	GA REF.	SGH. REF.	D E S C R I P T I O N	SHEET NO.	QTY.	TYPE	MAKE	ORDERING INFORMATION
7	U25.5001	86T1	TRIP UNIT COMPRISING OF:	232,276	2	MVAJ105	ALSTOM	MVAJ105 RA0804A
	U25.5003	86CBF	TRIPPING RELAY : HIGH BURDEN TYPE					
			AUX.VOLTAGE : 110-125V DC					
			CONTACTS : 6NO + 4NC ELECTRICAL AND HAND RESET					
			FLAGING : HAND RESET					
			CONTACT MECHANISM : HAND & ELECTRICALLY RESET					
8	U25.5002	94T1	TRIP UNIT (94T1) COMPRISING OF:	232	1	MVAJ101	ALSTOM	MVAJ101RA0800A
			AUX. VOLTAGE : 110/125V DC					
			CONTACT DATA : 10 NO, SELF RESET					
			FLAGING : HAND RESET					
9	U25.5004	86B-1	TRIP UNIT COMPRISING OF:	276,277	2	MVAJ205	ALSTOM	MVAJ205TA0804A
	U25.5005	86B-2	TRIPPING RELAY : HIGH BURDEN TYPE					
			AUX.VOLTAGE : 110-125V DC					
			CONTACTS : 16NO + 4NC ELECTRICAL AND HAND RESET					
			FLAGING : HAND RESET					
			CONTACT MECHANISM : HAND & ELECTRICALLY RESET					
10	U29.101	74R1/74RS	DUAL TARGET RELAY (REVERSE FLAG) "eR1 DC SUPPLY FAIL	232	1	RXSF 1	ABB	RK 271 019-AN
			AUXILIARY VOLTAGE : 110-125V DC					
			CONTACT DATA : 1NO + 2NC PER COIL					
			FLAG : SELF RESET					
11	U29.107	TMR/86B-1	DELAY FOR PICKUP RELAY	276/277	2	RXKL 1	ABB	1MRK 000 066-AB
	U29.301	TMR/86B-2	AUXILIARY VOLTAGE : 24-250V DC					
			CONTACT DATA : 2 C/O					
12	U29.307	R1	RESISTOR UNIT FOR TCS	291	1	RXTMA1	ABB	RK 711 008-AF
			RESISTOR WATT : 6.8K OHMS					

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REV. NO.	DATE	DESCRIPTION																

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LABEL REF.	LABEL ENGRAVING	MATERIALS	ENGRAVING	LABEL SIZE	LETTER SIZE
U05.5001	U05.5001 87T1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U12.101	U12.101 TS-1	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U12.113	U12.113 TS-2	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U16.5001	U16.5001 S86T1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U16.5002	U16.5002 S86CBF	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U16.5003	U16.5003 S86B-1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U16.5004	U16.5004 S86B-2	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U25.5001	U25.5001 86T1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U25.5002	U25.5002 94T1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U25.5003	U25.5003 86CBF	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U25.5004	U25.5004 86B-1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U25.5005	U25.5005 86B-2	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U29.101	U29.101 74R1	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U29.107	U29.107 TMR/86B-1	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U29.301	U29.301 TMR/86B-2	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U29.307	U29.307 R2	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U29.113	U29.113 R1	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U39.5001	U39.5001 Q1	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U39.5002	U39.5002 Q2	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U36.5001	U36.5001 Q3	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm

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LABEL REF.	LABEL ENGRAVING	MATERIALS	ENGRAVING	LABEL SIZE	LETTER SIZE
C1	C1 127V AC SUPPLY MCB	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C2	C2 220V AC SUPPLY MCB	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C3	C3 THERMOSTAT	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C7	C7 ON/OFF SWITCH	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
DS	DS DOOR SWITCH	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
IL	IL ILLUMINATION LAMP	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
SH	SH SPACE HEATER	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm

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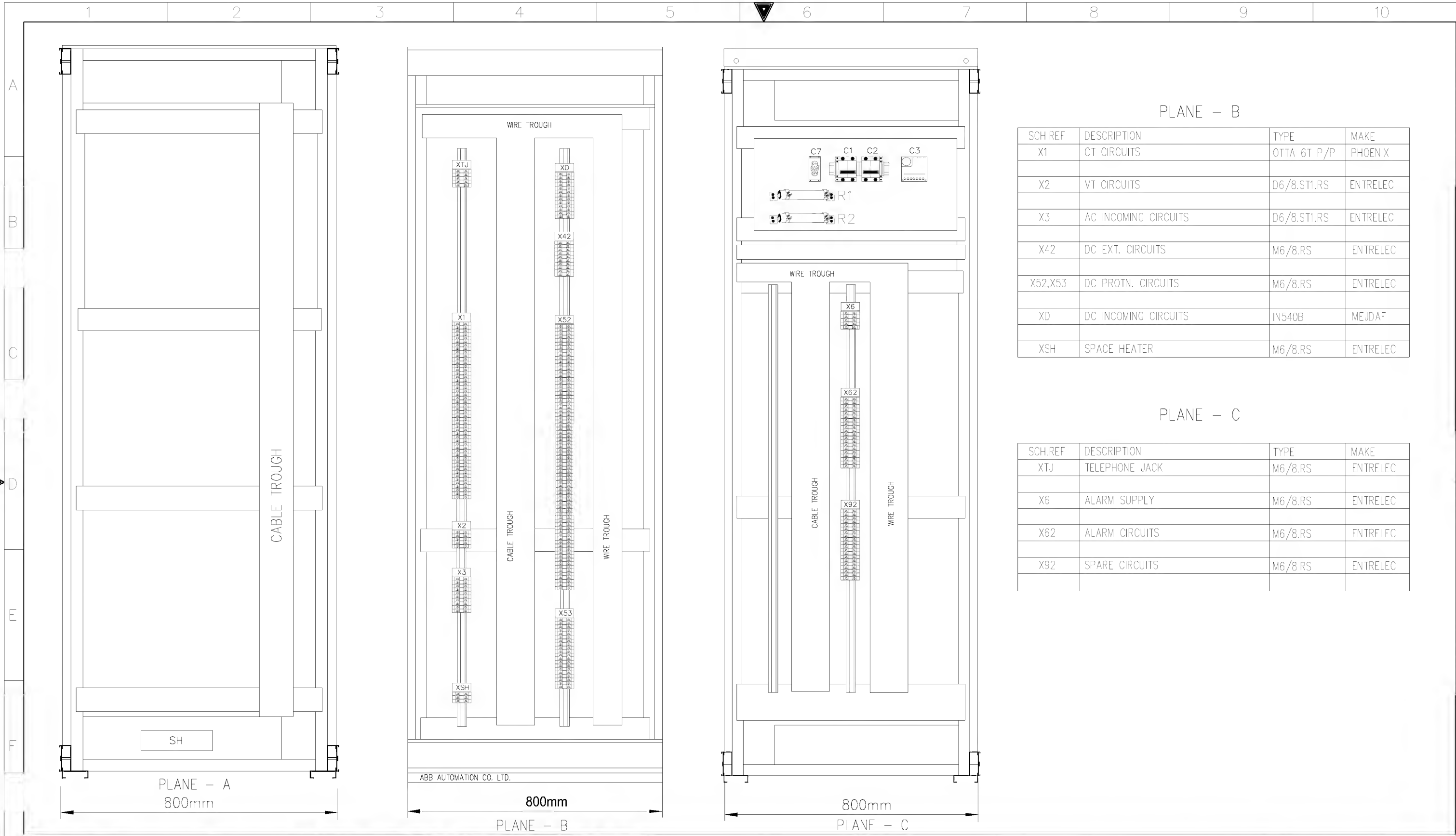
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C	CONTRACTOR : ABB Contracting Company																																																																																	
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E	CONTRACT NO. : 11131113/00																																																																																	
F	TITLE : Assembly Drawing +R05.2 [GT-1]																																																																																	
G	<table><tr><td colspan="3">AS-BUILT BY _____ DATE _____</td><td colspan="2">CONTRACT NO. 11131113/00</td><td colspan="2">JOB ORDER NO. S-13656</td><td colspan="3">COVER SHEET</td><td colspan="2"> نقل الكهرباء الشركة الوطنية لنقل الكهرباء National Grid sa</td></tr><tr><td>01</td><td>13 49</td><td>FACTORY ASBUILT</td><td colspan="2">DRAWN BY RIZ</td><td colspan="2">CHECKED BY JKR</td><td colspan="3">132/13.8kV GT-1 RELAY PANEL-2 +R05.2</td><td>INDEX</td><td>PLANT NO.</td><td>DRAWING NUMBER</td><td>SHEET NO.</td><td>REV. NO.</td></tr><tr><td>00</td><td>13 04</td><td>FOR APPROVAL</td><td colspan="2">DATE STARTED 24.01.2013</td><td colspan="2">DATE COMPLETED</td><td colspan="3">S/S 8709-132/13.8KV IN AL-KHARJ CITY</td><td>-</td><td>C421</td><td>CD-322927</td><td>SHT</td><td>CONT.</td></tr><tr><td>REV. NO.</td><td>DATE</td><td>DESCRIPTION</td><td colspan="2">OPRG. DEPT. CTPD</td><td colspan="2">ENG. DEPT. AUT-PSAC</td><td colspan="3">RIYADH SAUDI ARABIA</td><td></td><td></td><td></td><td>G00</td><td>G01</td></tr><tr><td></td><td></td><td></td><td colspan="2"></td><td colspan="2"></td><td colspan="3"></td><td></td><td></td><td></td><td></td><td>01</td></tr></table>										AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		COVER SHEET			 نقل الكهرباء الشركة الوطنية لنقل الكهرباء National Grid sa		01	13 49	FACTORY ASBUILT	DRAWN BY RIZ		CHECKED BY JKR		132/13.8kV GT-1 RELAY PANEL-2 +R05.2			INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.	00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED		S/S 8709-132/13.8KV IN AL-KHARJ CITY			-	C421	CD-322927	SHT	CONT.	REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA						G00	G01															01
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NG/D2-D (2012/01)

DMS VECTOR

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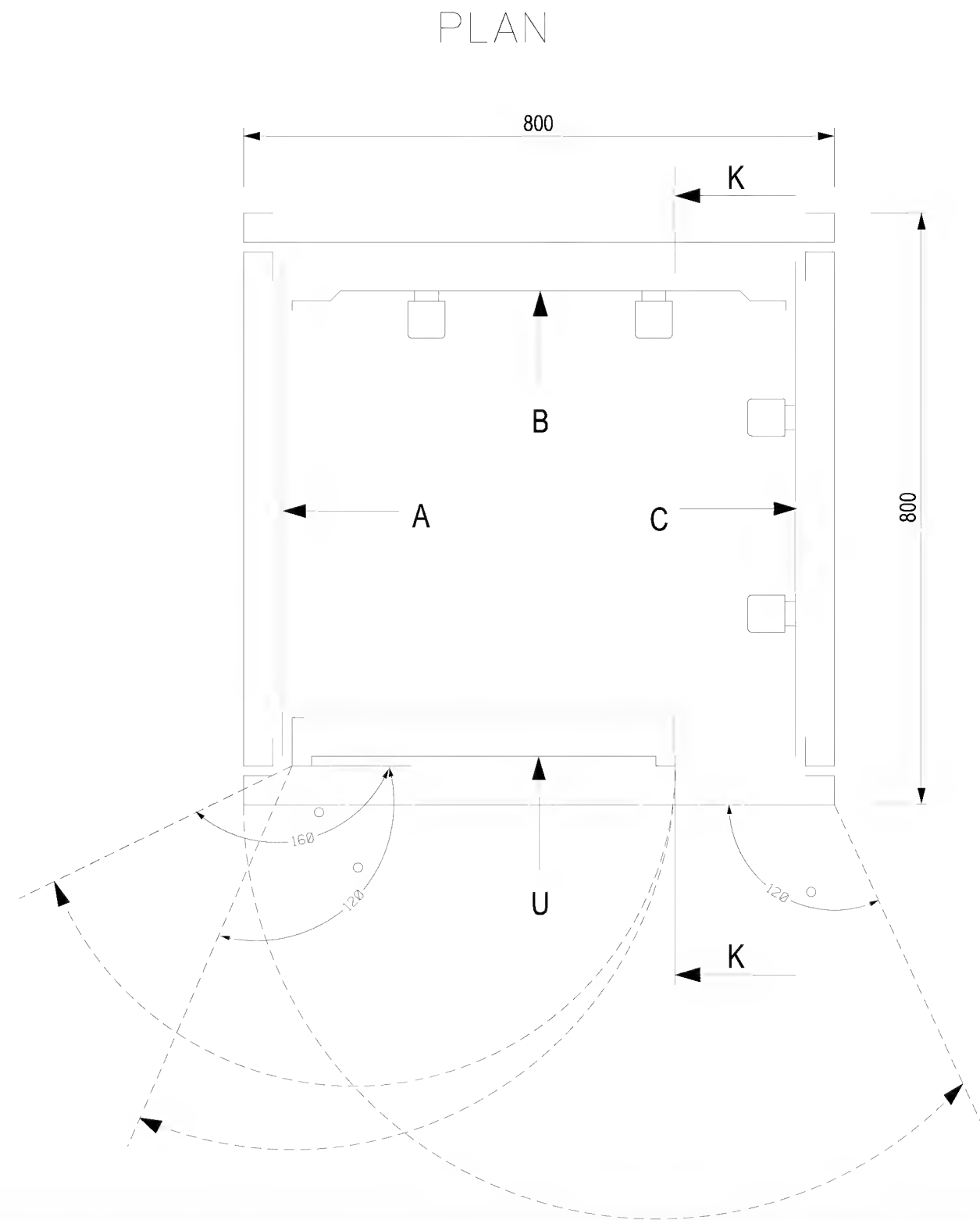
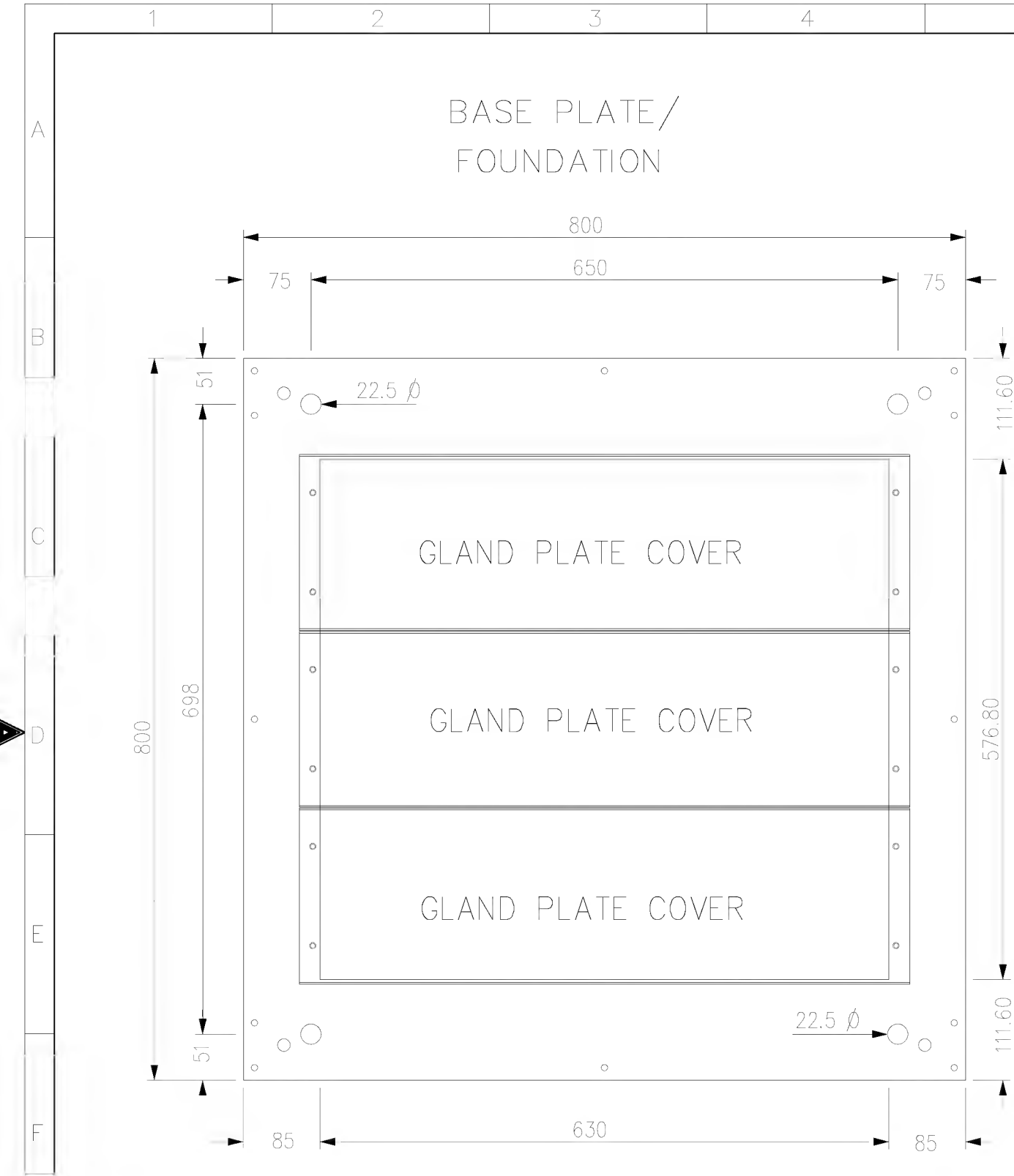
PLANE – B

SCH REF	DESCRIPTION	TYPE	MAKE
X1	CT CIRCUITS	OTTA 6T P/P	PHOENIX
X2	VT CIRCUITS	D6/8.ST1.RS	ENTRELEC
X3	AC INCOMING CIRCUITS	D6/8.ST1.RS	ENTRELEC
X42	DC EXT. CIRCUITS	M6/8.RS	ENTRELEC
X52,X53	DC PROTN. CIRCUITS	M6/8.RS	ENTRELEC
XD	DC INCOMING CIRCUITS	IN540B	MEJDAF
XSH	SPACE HEATER	M6/8.RS	ENTRELEC

PLANE – C

SCH.REF	DESCRIPTION	TYPE	MAKE
XTJ	TELEPHONE JACK	M6/8.RS	ENTRELEC
X6	ALARM SUPPLY	M6/8.RS	ENTRELEC
X62	ALARM CIRCUITS	M6/8.RS	ENTRELEC
X92	SPARE CIRCUITS	M6/8 RS	ENTRELEC

G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		ASSEMBLY DRAWING		<div>نقل الكهرباء</div> <div>National Grid sa</div> <div></div> <div>الشركة الوطنية لنقل الكهرباء</div>				
	01	13 49	FACTORY ASBUILT		DRAWN BY RIZ CHECKED BY JKR		132/13.8kV GT-1 RELAY PANEL-2 +R05.2						
	00	13 04	FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY						
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA						
								INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
								-	C421	CD-322927	SHT	CONT.	01
								G02	G03				



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656	
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REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC	

ASSEMBLY DRAWING	
132/13.8kV GT-1 RELAY PANEL-2 +R05.2	
S/S 8709-132/13.8KV IN AL-KHARJ CITY	
RIYADH SAUDI ARABIA	

الشركة الوطنية لنقل الكهرباء				نقل الكهرباء	
				National Grid sa	
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
-	C421	CD-322927	SHT	CONT.	01
			G03	G04	

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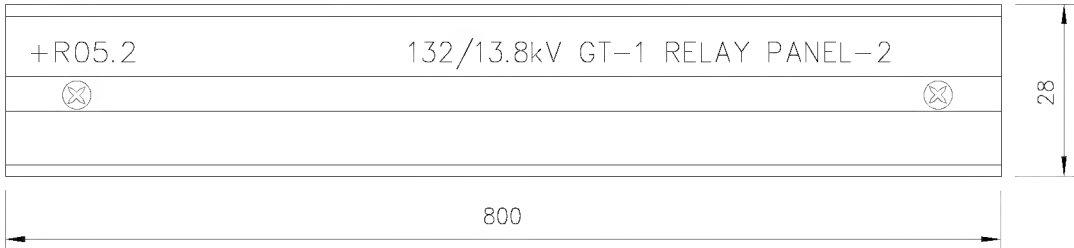
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G



TOP VIEW FOR EARTHING BAR

U PLANE TOP LABEL



U PLANE BOTTOM LABEL



MANUFACTURING LABEL

ABB

ABB Automation Co.Ltd.

PROJECT :

National Grid SA
S/S 8709

ORDER REFERENCE :

2875 RF S13656

YEAR OF MANUFACTURE:

2013

PANEL NO. :

+R05.2

DRAWING NO. :





S13656-CD-323928

MADE IN THE KINGDOM OF SAUDI ARABIA

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656	
01	13 49	FACTORY ASBUILT	DRAWN BY RIZ		CHECKED BY JKR	
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED _____	
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ASSEMBLY DRAWING	
132/13.8kV GT-1 RELAY PANEL-2 +R05.2	
S/S 8709-132/13.8KV IN AL-KHARJ CITY	
RIYADH SAUDI ARABIA	

الشركة الوطنية لنقل الكهرباء				نقل الكهرباء	
				National Grid sa	
INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	
-	C421	CD-322927		SHT	CONT.
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AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS			 نقل الكهرباء الشركة الوطنية لنقل الكهرباء National Grid sa																																																									
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NG/D2-D (2012/01)
DMS VECTOR NGD200


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G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS		الشركة الوطنية لنقل الكهرباء		 نقل الكهرباء National Grid sa				
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	00	13 04	FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY		-	C421	CD-322927		SHT	CONT.	01
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA						L02	L03	

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AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS 132/13.8kv GT-1 RELAY PANEL-2 +R05.2 S/S 8709-132/13.8KV IN AL-KHARJ CITY RIYADH SAUDI ARABIA			<div><div><div>الشركة الوطنية لنقل الكهرباء</div><div></div><div>National Grid sa</div></div></div>						
			DRAWN BY RIZ CHECKED BY JKR		DATE STARTED 24.01.2013 DATE COMPLETED _____					INDEX PLANT NO. DRAWING NUMBER SHEET NO. REV. NO.						
01 13 49 FACTORY ASBUILT							-		C421		CD-322927		SHT L04 CONT. L05		01	
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REV. NO. DATE DESCRIPTION			OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC													

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LABEL REF.	LABEL ENGRAVING	MATERIALS	ENGRAVING	LABEL SIZE	LETTER SIZE
U05.5001	U05.5001 871-2	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U12.5001	U12.5001 TS-1	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U12.5002	U12.5002 TS-2	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U12.5003	U12.5003 TS-3	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U12.5004	U12.5004 TS-4	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U16.5001	U16.5001 S86T2	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U20.101	U20.101 TS-4	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U24.5001	U29.5001 86T2	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U24.5002	U29.5002 94T2	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.101	U28.101 23X 63QL-1X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.107	U28.107 63QH-1X 63QL-2X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.301	U28.301 63QH-2X 96D-1X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.307	U28.307 96D-2X 96-1X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.113	U28.113 63QP-1X 63GD-1X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.313	U28.313 26D-1X 26D-2X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.119	U28.119 49W1-5X 49W1-6X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.319	U28.319 63Q-SX 96-2X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.125	U28.125 63QP-2X 49W2-5X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.325	U28.325 49W2-6X SPARE	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.131	U28.131 74R2	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.331	U28.331 74R3	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.137	U28.137 63/49/96X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.337	U28.337 T1	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.149	U28.149 49X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.349	U28.349 96-3/96-4	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.143	U28.143 R1	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U28.343	U28.343 R2	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm

C	AS-BUILT BY _____ DATE _____		CONTRACT NO. 1113/1113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS		الشركة الوطنية لنقل الكهرباء National Grid sa						
	01	13 49	FACTORY ASBUILT		DRAWN BY RIZ CHECKED BY JKR		132/13.8kv GT-1 RELAY PANEL-2 +R05.2		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	00	13 04	FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY						SHT	CONT.	
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTFD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-322927		L05	L06	01

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LABEL REF.	LABEL ENGRAVING	MATERIALS	ENGRAVING	LABEL SIZE	LETTER SIZE
C1	C1 127V AC SUPPLY MCB	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C2	C2 220V AC SUPPLY MCB	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C3	C3 THERMOSTAT	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C7	C7 ON/OFF SWITCH	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
DS	DS DOOR SWITCH	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
IL	IL ILLUMINATION LAMP	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
SH	SH SPACE HEATER	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U39.5001	Q1 R2+SUPPLY	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U39.5002	Q2 R3+SUPPLY	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U39.5003	C01,C02 OUTLET	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U39.5004	TJ TELEPHONE JACK	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
U36.5001	Q3 TC- 2+SUPPLY	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm

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AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS		<div>الشركة الوطنية لنقل الكهرباء</div> <div> نقل الكهرباء National Grid sa</div>					
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00	13 04	FOR APPROVAL	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-322927	L06000		01
REV. NO.	DATE	DESCRIPTION												

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E	CONTRACT NO. : 11131113/00																																																																		
F	TITLE : SCHEMATICS DRAWINGS (+R05.1,+R05.2)																																																																		
G	<table><tr><td colspan="3">AS-BUILT BY _____ DATE _____</td><td colspan="2">CONTRACT NO. 11131113/00</td><td colspan="2">JOB ORDER NO. S-13656</td><td colspan="3">COVER SHEET</td><td colspan="2"> نقل الكهرباء الشركة الوطنية لنقل الكهرباء National Grid sa</td></tr><tr><td>01</td><td>13 49</td><td>FACTORY ASBUILT</td><td colspan="2">DRAWN BY RIZ</td><td colspan="2">CHECKED BY JKR</td><td colspan="3">132/13.8KV GT-1 RELAY PANEL -+R05.1/+R05.2</td><td>INDEX</td><td>PLANT NO.</td><td>DRAWING NUMBER</td><td>SHEET NO.</td><td>REV. NO.</td></tr><tr><td>00</td><td>13 04</td><td>FOR APPROVAL</td><td colspan="2">DATE STARTED 24.01.2013</td><td colspan="2">DATE COMPLETED</td><td colspan="3">S/S 8709-132/13.8KV IN AL-KHARJ CITY</td><td>-</td><td>C421</td><td>CD-322928</td><td>SHT 000</td><td>CONT. 001</td></tr><tr><td>REV. NO.</td><td>DATE</td><td>DESCRIPTION</td><td colspan="2">OPRG. DEPT. CTPD</td><td colspan="2">ENG. DEPT. AUT-PSAC</td><td colspan="3">RIYADH SAUDI ARABIA</td><td></td><td></td><td></td><td></td><td>01</td></tr></table>										AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		COVER SHEET			 نقل الكهرباء الشركة الوطنية لنقل الكهرباء National Grid sa		01	13 49	FACTORY ASBUILT	DRAWN BY RIZ		CHECKED BY JKR		132/13.8KV GT-1 RELAY PANEL -+R05.1/+R05.2			INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.	00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED		S/S 8709-132/13.8KV IN AL-KHARJ CITY			-	C421	CD-322928	SHT 000	CONT. 001	REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA							01
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		COVER SHEET			 نقل الكهرباء الشركة الوطنية لنقل الكهرباء National Grid sa																																																									
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00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED		S/S 8709-132/13.8KV IN AL-KHARJ CITY			-	C421	CD-322928	SHT 000	CONT. 001																																																					
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA							01																																																					

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NG/D2-D (2012/01)
DMS VECTOR NGD200

[illegible]

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CONTENTS	ABB SHT.NO.	REV.00	REV.01	REV.02
AC SUPPLY FOR ILLUMINATION & POWER SOCKET	411	X	X	
CUB. LIGHTING, HEATER & SOCKET ALARM CKT.	412	X	X	
DC SUPPLY DISTRIBUTION FOR SYSTEM SYNCHRONISER	416	X	X	
CT CIRCUIT 87T-2 RELAY	421-422	X	X	
CT CIRCUIT 87T-2 RELAY	423	X	X	
CT & VT CIRCUITS 87T-2 RELAY	424	X	X	
87T-2 BINARY INPUTS	429	X	X	
87T-2 BINARY INPUTS	430	X	X	
MAIN-2 DIFF. PROTECTION TRIP RELAY CKT.	432	X	X	
TRANS.MECH.PROTN.CONTACT MULTI.CKT	433	X	X	
TRANS.MECH.PROTN.CONTACT MULTI.CKT	434	X	X	
TRANS.MECH.PROTN.CONTACT MULTI.CKT	435	X	X	
TRANS.MECH.PROTN.CONTACT MULTI.CKT	436	X	X	
CB K305 TRIP CIRCUIT-2 SUPERVISION CIRCUIT	491	X	X	
BF INI & CLOSE BLOCK CIRCUIT	492	X	X	
TRANSFORMER MECHANICAL.PROTN.	493	X	X	
CONTACTS FOR TRIP AND CLOSE BLOCK	494	X	X	
CONTACTS FOR U/F LOAD SHEDDING	496	X	X	
MECH PROTN. ALARM CIRCUIT	498	X	X	
STN COMMON ALARM CIRCUIT	499	X	X	
BLOCK REFERENCE	501	X	X	
BLOCK REFERENCE	502	X	X	
TERMINAL BLOCKS REFERENCE +R05.2	506	X	X	
TERMINAL BLOCKS REFERENCE +R05.2	507	X	X	

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

0113 49FACTORY ASBUILT

0013 04FOR APPROVAL

REV. NO. DATE DESCRIPTION

DRAWN BY RIZ CHECKED BY JKR

DATE STARTED 24.01.2013 DATE COMPLETED _____

OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

CONTENTS SHEET

132/13.8KV GT-1 RELAY PANEL-1/2

S/S 8709-132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء
National Grid sa

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
-	C421	CD-322928	SHT	CCNT.	01
			002	011	

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LEGENDS

±R1 DC SUPPLY – MAIN PROTECTION
 ±R2 DC SUPPLY – SECONDARY PROTECTION
 ±R3 DC SUPPLY – BACK UP PROTECTION
 ±IT DC SUPPLY – INTER TRIP
 FL DC SUPPLY – FLASHING CIRCUIT
 BB RS± DC SUPPLY – BUS BAR – PROTECTION RESET
 BB CBF±/CBF± DC SUPPLY – CBF PROTECTION

R RESET BUS – ALARM SYSTEM
 CR CONTROL ROOM
 ECC ENERGY CONTROL CENTRE
 LOCAL THE LOCATION OF CONTROLLED DEVICE
 REMOTE ANY OTHER LOCATION NOT LOCAL

ON CB NORMALLY OPEN AUXILIARY CONTACT
 OFF CB NORMALLY CLOSED AUXILIARY CONTACT
 A COMMON
 T TEST POSITION
 S SERVICE POSITION
 CS CLOSE IN SERVICE POSITION
 CT CLOSE IN TEST POSITION
 LS LOCAL SERVICE
 LT LOCAL TEST
 LC LOCAL CLOSE
 LO LOCAL OPEN
 RO REMOTE OPEN
 OP OPERATE
 RE RESET

NOTES

LABELS

WHITE LABEL WITH BLACK LETTERING WILL BE PROVIDED FOR ALL MOUNTED APPARATUS EQUIPMENT IDENTIFICATION AND FUNCTION REFERENCE LABEL WILL BE PROVIDED FOR FRONT MOUNTED EQUIPMENTS OF THE PANEL AND EQUIPMENT IDENTIFICATION LABEL WILL BE PROVIDED FOR INTERNALLY MOUNTED EQUIPMENTS

WIRING


PVC INSULATED 600V GRADE
 2.5 SQ.mm. YELLOW COLOURED FOR CT CIRCUITS
 2.5 SQ.mm. RE COLOURED FOR VT CIRCUITS
 1.5 SQ.mm. GREY COLOURED FOR DC SUPPLY, SCADA AND CONTROL CIRCUITS
 2.5 SQ.mm. BLACK COLOURED FOR AVC AND AC CIRCUITS
 2.5 SQ.mm. YELLOW/GREEN COLOURED FOR EARTHING CONNECTIONS
 FOLLOWING MARKERS SHALL BE PROVIDED ON FOLLOWING WIRES:
 + SIGN FOR DC + WIRE
 – SIGN FOR DC – WIRE

LUGS

A. CT CIRCUITS– RING TYPE
 B. OTHER CIRCUITS – SPADE TYPE

FERULLING

YELLOW TUBE 3.2 mm FOR 1.5SQ mm WIRES AND 4.2 FOR 2.5 SQ mm WIRES (AS PER 31 – TMSS–1, RE.0)

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		<div><div><div>الشركة الوطنية لنقل الكهرباء</div><div><div>نقل الكهرباء</div><div>National Grid sa</div></div></div></div>									
01	13 49	FACTORY ASBUILT	DRAWN BY _____ RIZ _____ CHECKED BY _____ JKR		COMMON LEGEND											
00	13 04	FOR APPROVAL	DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____		132/13.8KV GT-1 RELAY PANEL-1/2		INDEX		PLANT NO.		DRAWING NUMBER		SHEET NO.		REV. NO.	
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. _____ CTFD _____ ENG. DEPT. _____ AUT-PSAC		S/S 8709-132/13.8KV IN AL-KHARJ CITY		-		C421		CD-322928		SHT		CONT.	
					RIYADH SAUDI ARABIA								013		014	
															01	

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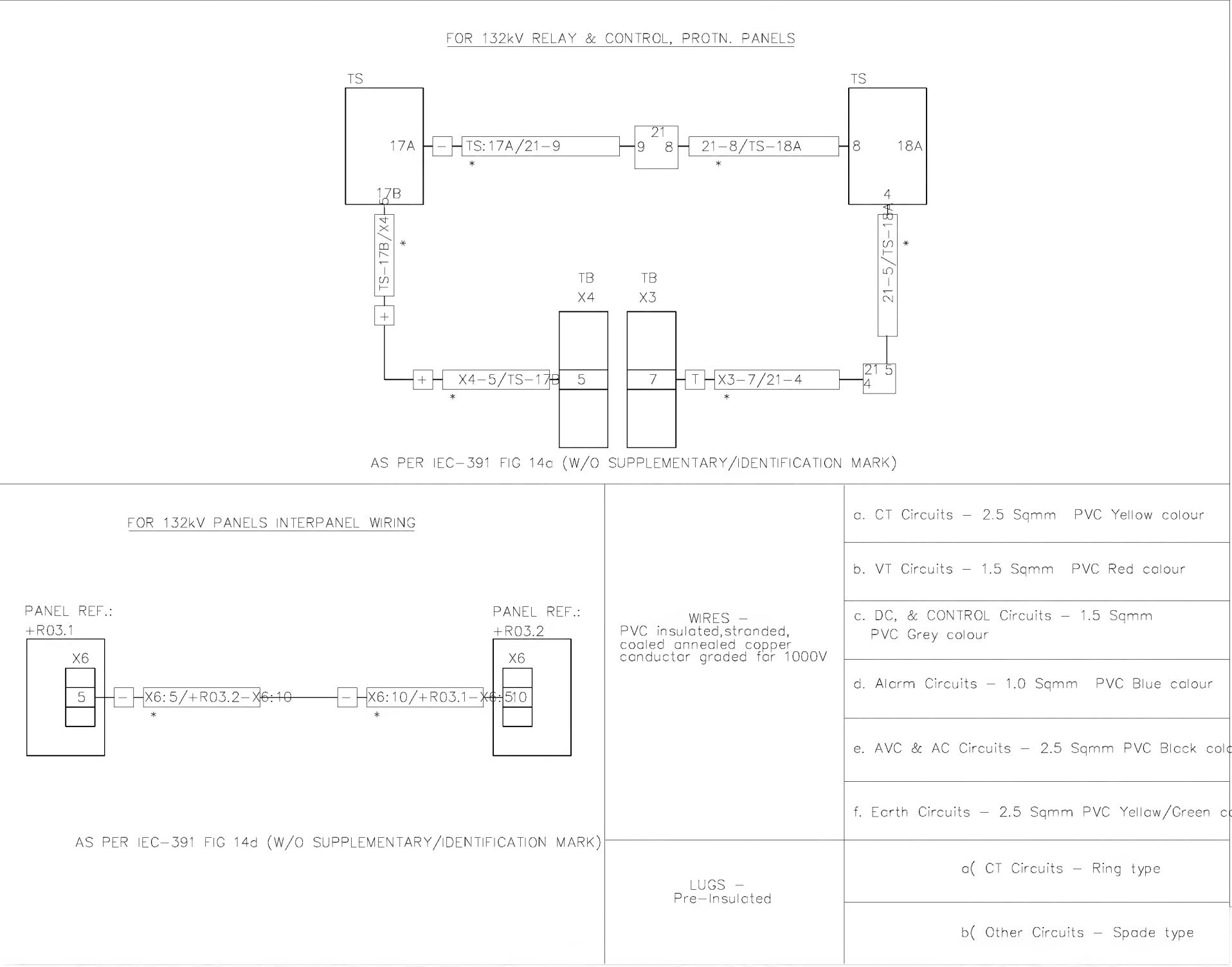
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NOTE:1 ADDITIONAL MARKING AS APPLICABLE

NOTE:2 FERRULE NUMBERING WILL BE BLACK LETTERS ON YELLOW TUBE

3.2 mm for 1.5 sq mm wires and

4.2 mm for 2.5 sq mm wires

(As per 31-TMSS-1, REV 0)


NOTE:3 STARTING POINT OF THE FERRULE LEFT TO RIGHT

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656	
01	13 49	FACTORY ASBUILT	DRAWN BY RIZ		CHECKED BY JKR	
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED _____	
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC	

FERRULE AND WIRING DETAILS	
132/13.8KV GT-1 RELAY PANEL-1/2	
S/S 8709-132/13.8KV IN AL-KHARJ CITY	
RIYADH SAUDI ARABIA	

الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		National Grid sa	
INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	
-	C421	CD-322928		SHT	CONT.
				014	015
				REV. NO. 01	

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MANUFACTURER	SCHEMATICS DWG.NO	PANEL DESCRIPTION	PANEL REFERENCE
 PROTECTION & SUBSTATION AUTOMATION		SS 8709 132kV RELAY PANELS	
	CD-322928	132/13.8kV GT-1 RELAY PANEL -1	+R05.1
		132/13.8kV GT-1 RELAY PANEL -2	+R05.2
	CD-322931	132/13.8kV GT-2 RELAY PANEL -1	+R01.1
		132/13.8kV GT-2 RELAY PANEL -2	+R01.2
	CD-322934	132/13.8kV GT-3 RELAY PANEL -1	+R04.1
		132/13.8kV GT-3 RELAY PANEL -2	+R04.2
	CD-322936	132/13.8kV TRANSFORMER-1,2& 3 AVC PANEL	+AVC
	CD-322922	132KV SPARE-1 UGF RELAY PANEL -1	+R07.1
		132KV SPARE-1 UGF RELAY PANEL -2	+R07.2
	CD-322916	132KV 8020 UGF RELAY PANEL -1	+R02.1
		132KV 8020 UGF RELAY PANEL -2	+R02.2
	CD-322919	132KV 8710 UGF RELAY PANEL -1	+R05.1
		132KV 8710 UGF RELAY PANEL -2	+R05.2
	CD-322925	132KV SPARE-2 UGF RELAY PANEL -1	+R06.1
		132KV SPARE-2 UGF RELAY PANEL -2	+R06.2
	CD-323012	132KV FOIP PANEL	+FOIP
	CD-322946	132kV BUS COUPLER-A	+R130
	CD-322948	132kV BUS COUPLER-B	+R230
	CD-322950	132kV BUS SECTION	+R120
	CD-322991	132kV BUSBAR PROTECTION MAIN-1 CENTRAL UNIT PANEL	+BB1-1
	CD-322993	132kV BUSBAR PROTECTION MAIN-1 BAY UNIT PANEL	+BB1-2
	CD-322995	132kV BUSBAR PROTECTION MAIN-1 BAY UNIT PANEL	+BB1-3
	CD-322997	132kV BUSBAR PROTECTION MAIN-1 BAY UNIT PANEL	+BB1-4
	CD-322999	132kV BUSBAR PROTECTION MAIN-1 BAY UNIT PANEL	+BB1-5
	CD-323001	132kV BUSBAR PROTECTION MAIN-2 CENTRAL UNIT PANEL	+BB2-1
	CD-323003	132kV BUSBAR PROTECTION MAIN-2 BAY UNIT PANEL	+BB2-2
	CD-323005	132kV BUSBAR PROTECTION MAIN-2 BAY UNIT PANEL	+BB2-3
	CD-323007	132kV BUSBAR PROTECTION MAIN-2 BAY UNIT PANEL	+BB2-4
	CD-323009	132kV BUSBAR PROTECTION MAIN-2 BAY UNIT PANEL	+BB2-5

AS-BUILT BY _____ DATE _____

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

01

13 49

FACTORY ASBUILT

00

13 04

FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY RIZ

CHECKED BY JKR

DATE STARTED 24.01.2013

DATE COMPLETED

OPRG. DEPT. CTPD

ENG. DEPT. AUT-PSAC


DRAWING REFERENCES

132/13.8KV GT-1 RELAY PANEL-1/2

S/S 8709-132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



نقل الكهرباء

National Grid SA

INDEX

PLANT NO.

DRAWING NUMBER

SHEET NO.

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CONT.

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C421


CD-322928


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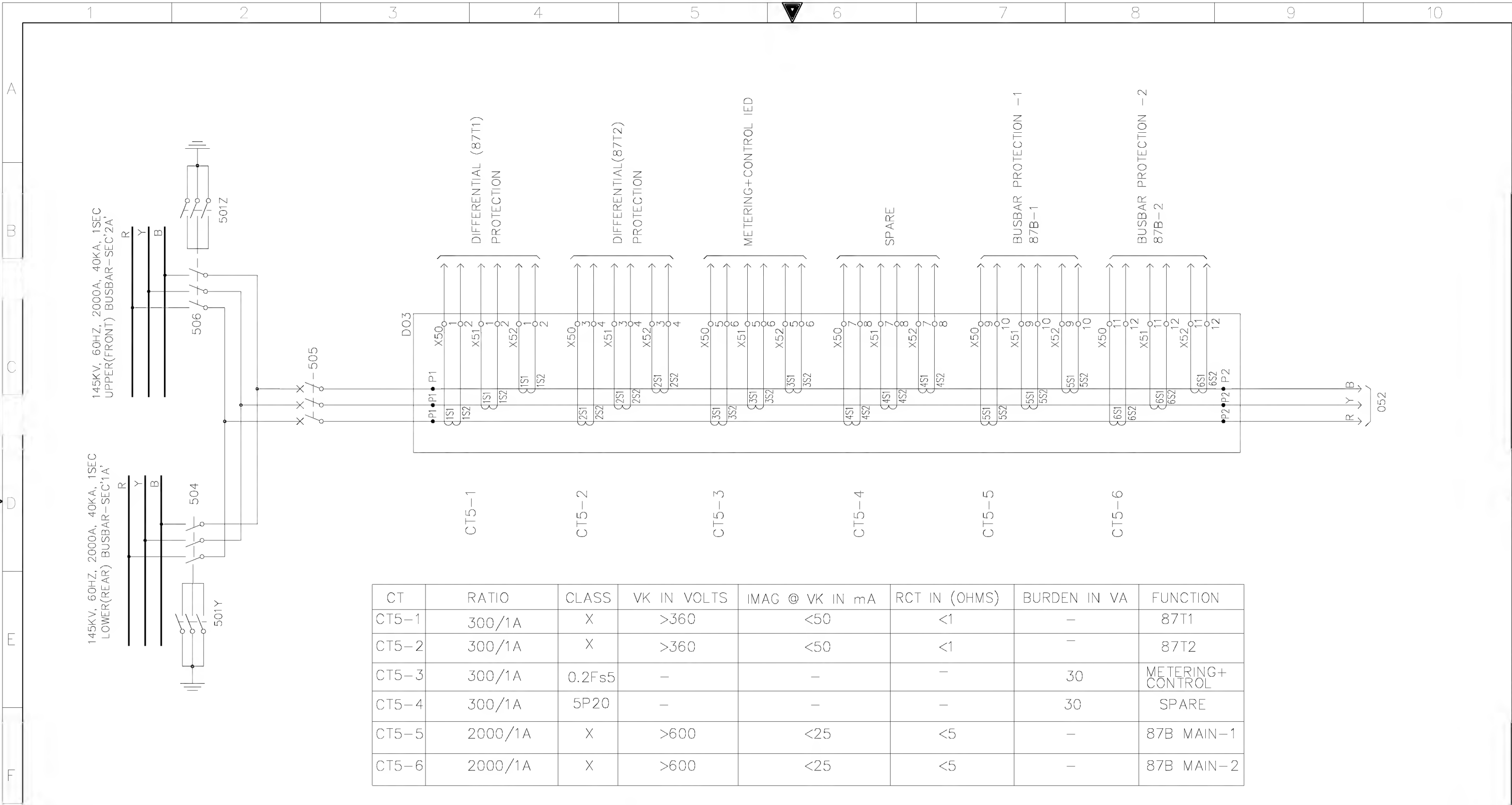
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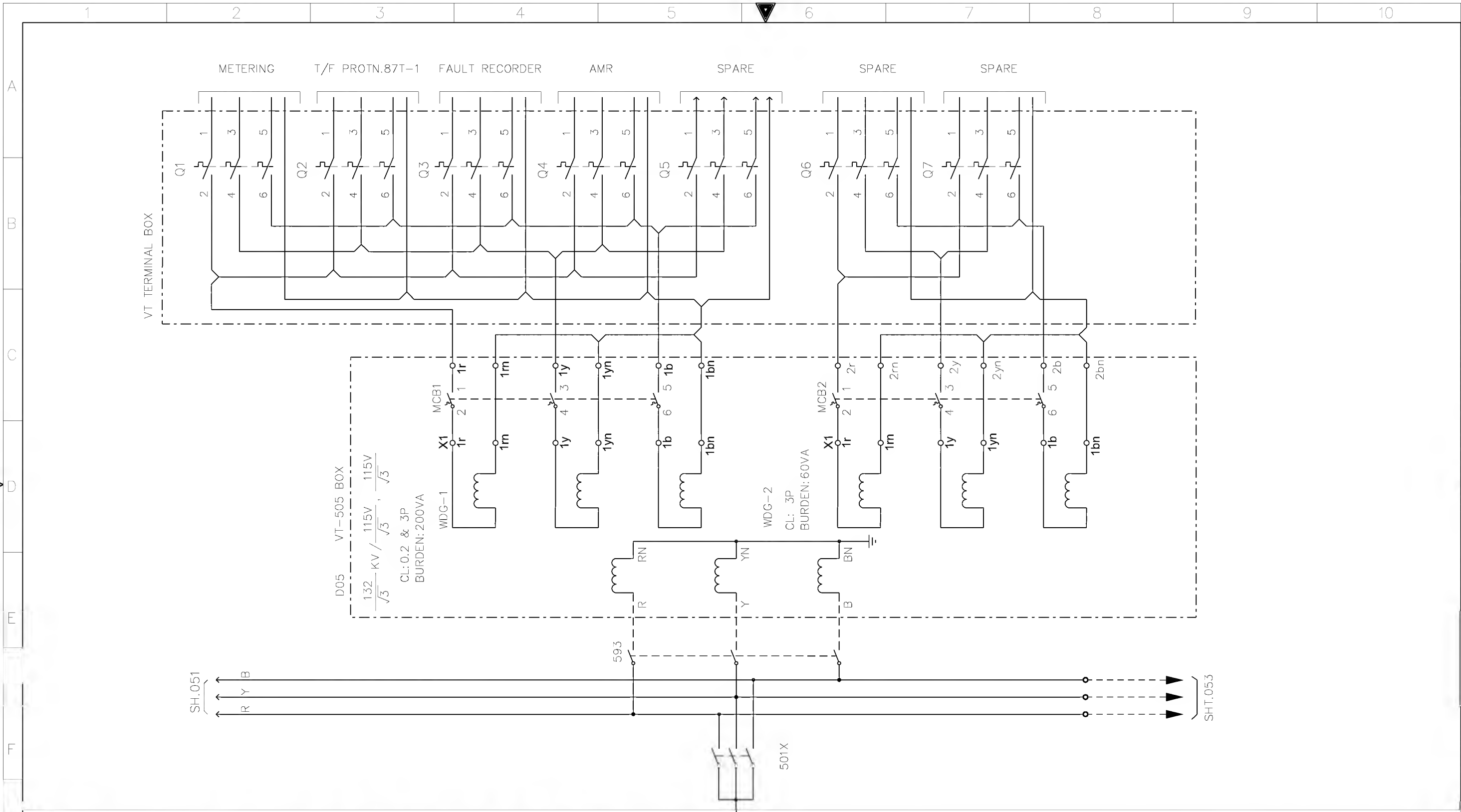
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MANUFACTURER	SCHEMATICS DWG.NO	PANEL DESCRIPTION	PANEL REFERENCE
 PROTECTION & SUBSTATION AUTOMATION		SS 8709 13.8KV RELAY PANELS	
	CD-322952	13.8KV Capacitor Bank-1 Protection Panel	+CBP-1
	CD-322954	13.8KV Capacitor Bank-2 Protection Panel	+CBP-2
	CD-322956	13.8KV Capacitor Bank-2 Protection Panel	+CBP-3
	CD-322958	13.8 KV ACCS PANEL	+ACCS
	CD-322962	13.8KV ACSE PANEL	+ACSE
	CD-322968	13.8KV Under Voltage Load Shedding Panel	+UVLS
	CD-322964	13.8KV Under Frequency Load Shedding Panel-1	+UFLS01
	CD-322966	13.8KV Under Frequency Load Shedding Panel-2	+UFLS02

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		DRAWING REFERENCES		<div><div></div><div>نقل الكهرباء الشركة الوطنية لنقل الكهرباء National Grid sa</div></div>				
			DRAWN BY <u>RIZ</u> CHECKED BY <u>JKR</u>		132/13.8KV GT-1 RELAY PANEL-1/2		132/13.8KV GT-1 RELAY PANEL-1/2						
01 13 49 FACTORY ASBUILT			DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY		INDEX		PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
00 13 04 FOR APPROVAL			OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>		RIYADH SAUDI ARABIA		-		C421	CD-322928	SHT 016 CONT. 051		01
REV. NO. DATE DESCRIPTION													



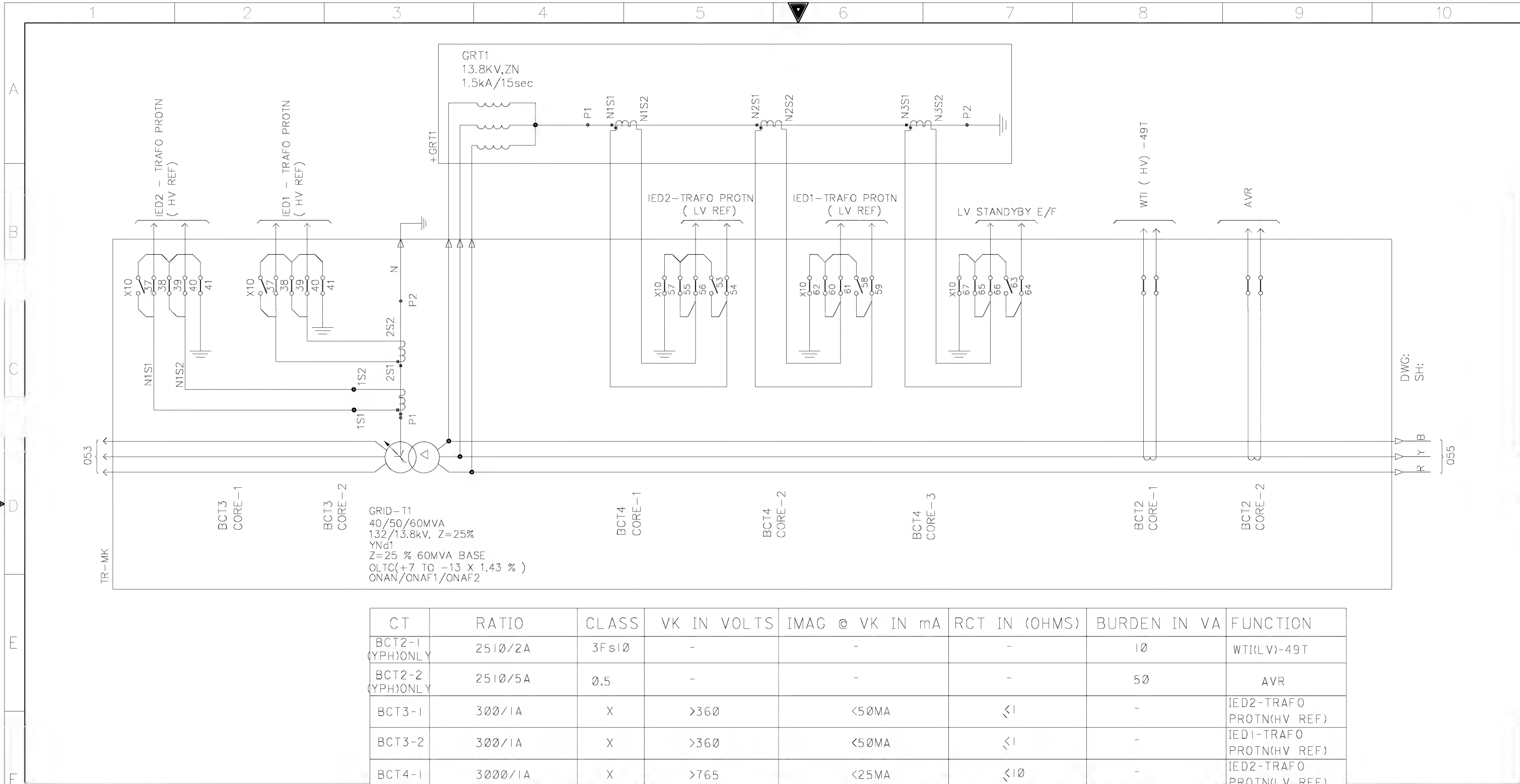
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		PRIMARY SYSTEM (GT-1)		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>						
			DRAWN BY RIZ		CHECKED BY JKR		132/13.8KV GT-1 RELAY PANEL-1/2								
			DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY								
01 13 49			FACTORY ASBUILT				S/S 8709-132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
00 13 04			FOR APPROVAL		OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC						SHT	CONT.	
REV. NO.			DATE		DESCRIPTION		RIYADH		-	C421	CD-322928		051	052	01



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656	
01	13 49	FACTORY ASBUILT	DRAWN BY <u>RIZ</u> CHECKED BY <u>JKR</u>			
00	13 04	FOR APPROVAL	DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____			
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>			

PRIMARY SYSTEM (GT-1)	
132/13.8KV GT-1 RELAY PANEL-1/2	
S/S 8709-132/13.8KV IN AL-KHARJ CITY	
RIYADH SAUDI ARABIA	

الشركة الوطنية لنقل الكهرباء		نقل الكهرباء	
National Grid sa		National Grid sa	
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.
-	C421	CD-322928	052 053
		REV. NO.	
		01	



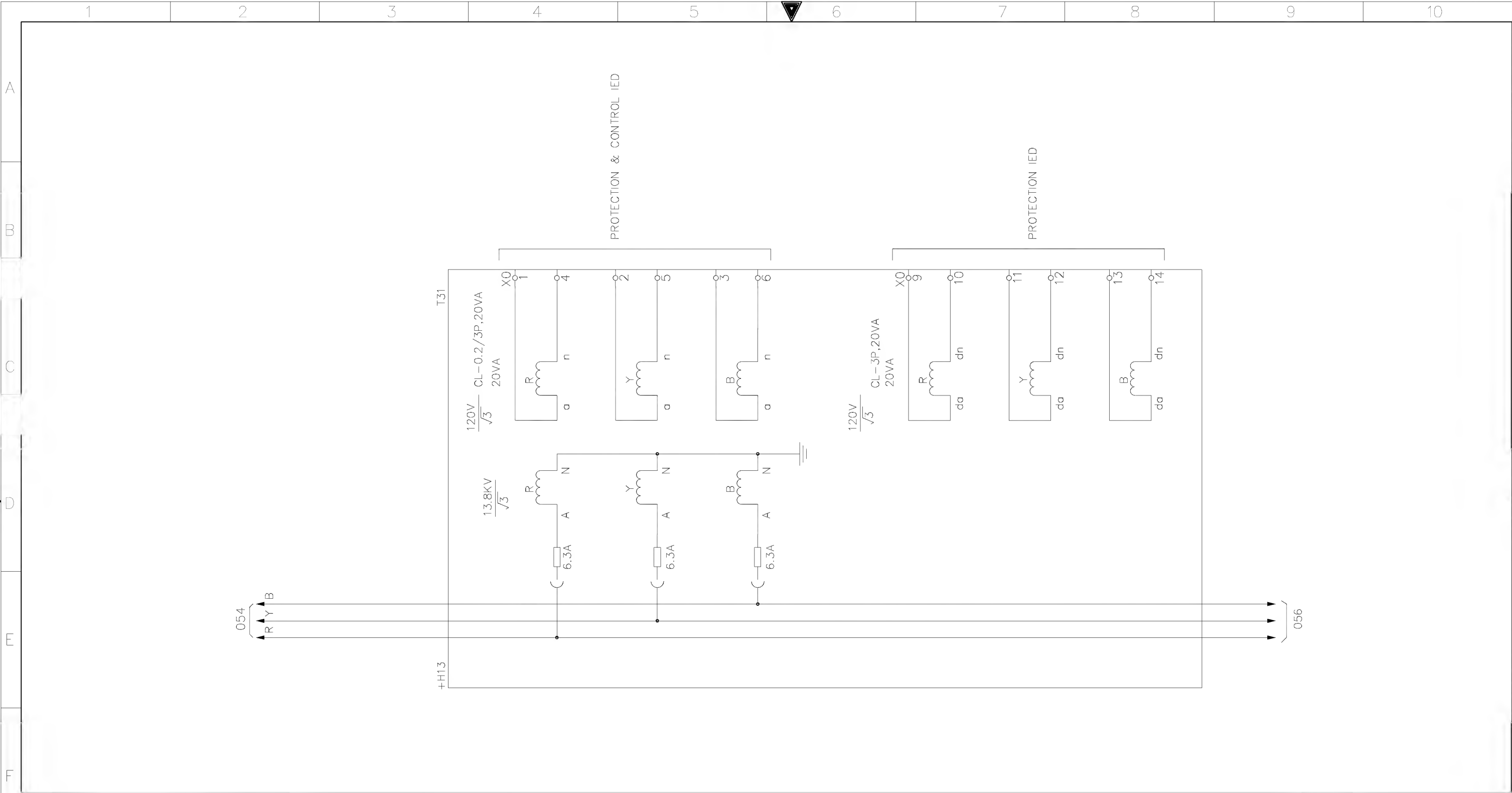
CT	RATIO	CLASS	VK IN VOLTS	IMAG @ VK IN mA	RCT IN (OHMS)	BURDEN IN VA	FUNCTION
BCT2-1 (YPH)ONLY	2510/2A	3Fs10	-	-	-	10	WTI(LV)-49T
BCT2-2 (YPH)ONLY	2510/5A	0.5	-	-	-	50	AVR
BCT3-1	300/1A	X	>360	<50MA	<1	-	IED2-TRAFO PROTN(HV REF)
BCT3-2	300/1A	X	>360	<50MA	<1	-	IED1-TRAFO PROTN(HV REF)
BCT4-1	3000/1A	X	>765	<25MA	<10	-	IED2-TRAFO PROTN(LV REF)
BCT4-2	3000/1A	X	>765	<25MA	<10	-	IED1-TRAFO PROTN(LV REF)
BCT4-3	800/5A	10P10	-	-	-	15	LV STANDBY E/F

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

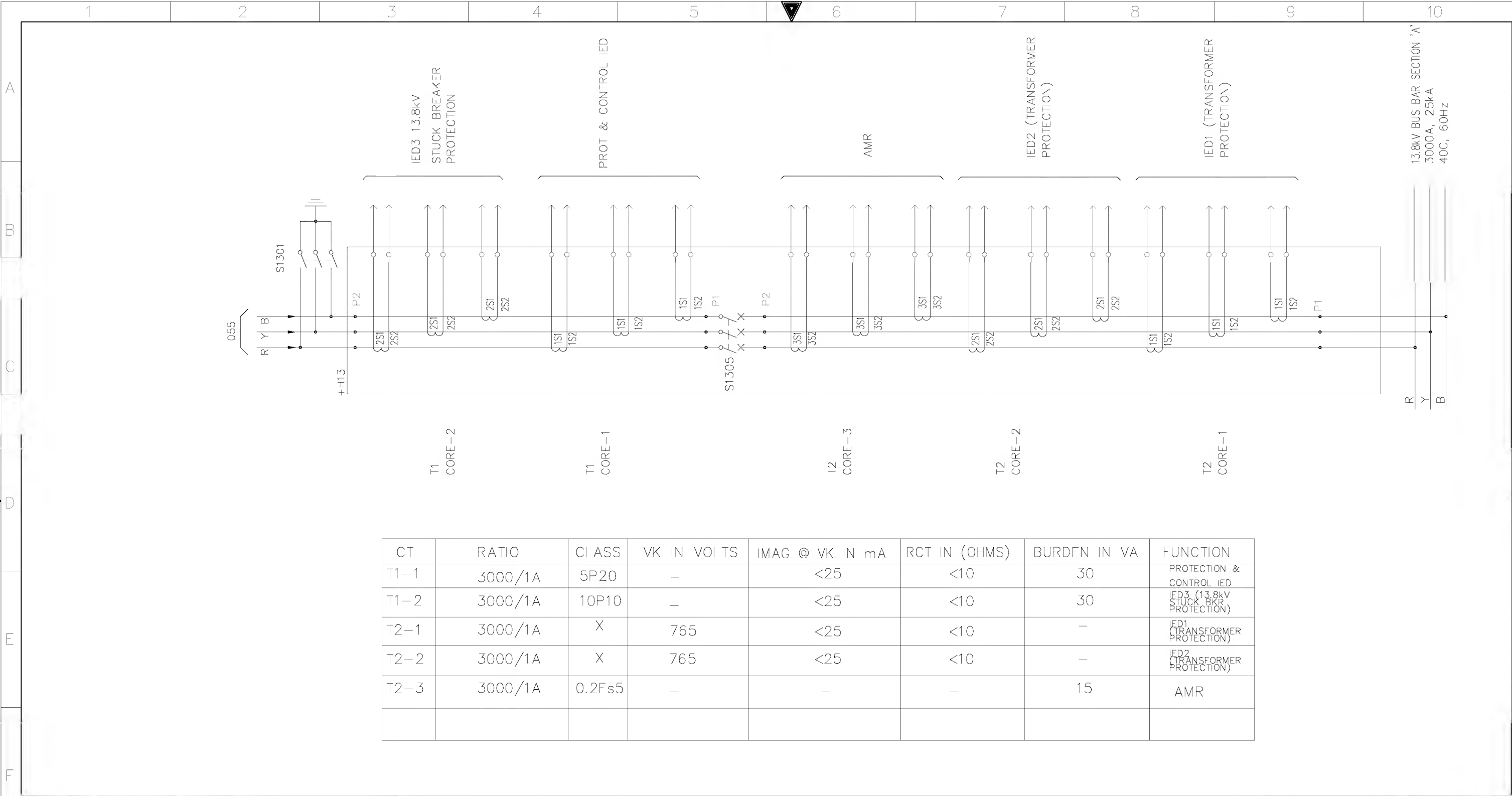
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00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

PRIMARY SYSTEM (GT-1)
132/13.8KV GT-1 RELAY PANEL-1/2
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء				نقل الكهرباء		
				National Grid sa		
INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
-	C421	CD-322928		SHT	CONT.	01
				054	055	



G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		PRIMARY SYSTEM (GT-1)		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>					
	01	13 49	FACTORY ASBUILT		DRAWN BY RIZ CHECKED BY JKR		132/13.8KV GT-1 RELAY PANEL-1/2							
	00	13 04	FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY							
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA							
									INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	
								-	C421	CD-322928		SHT 055	CONT. 056	01



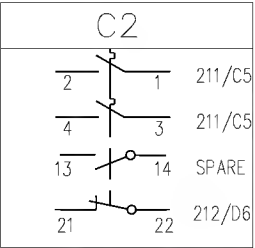
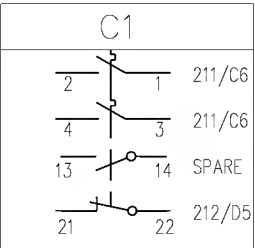
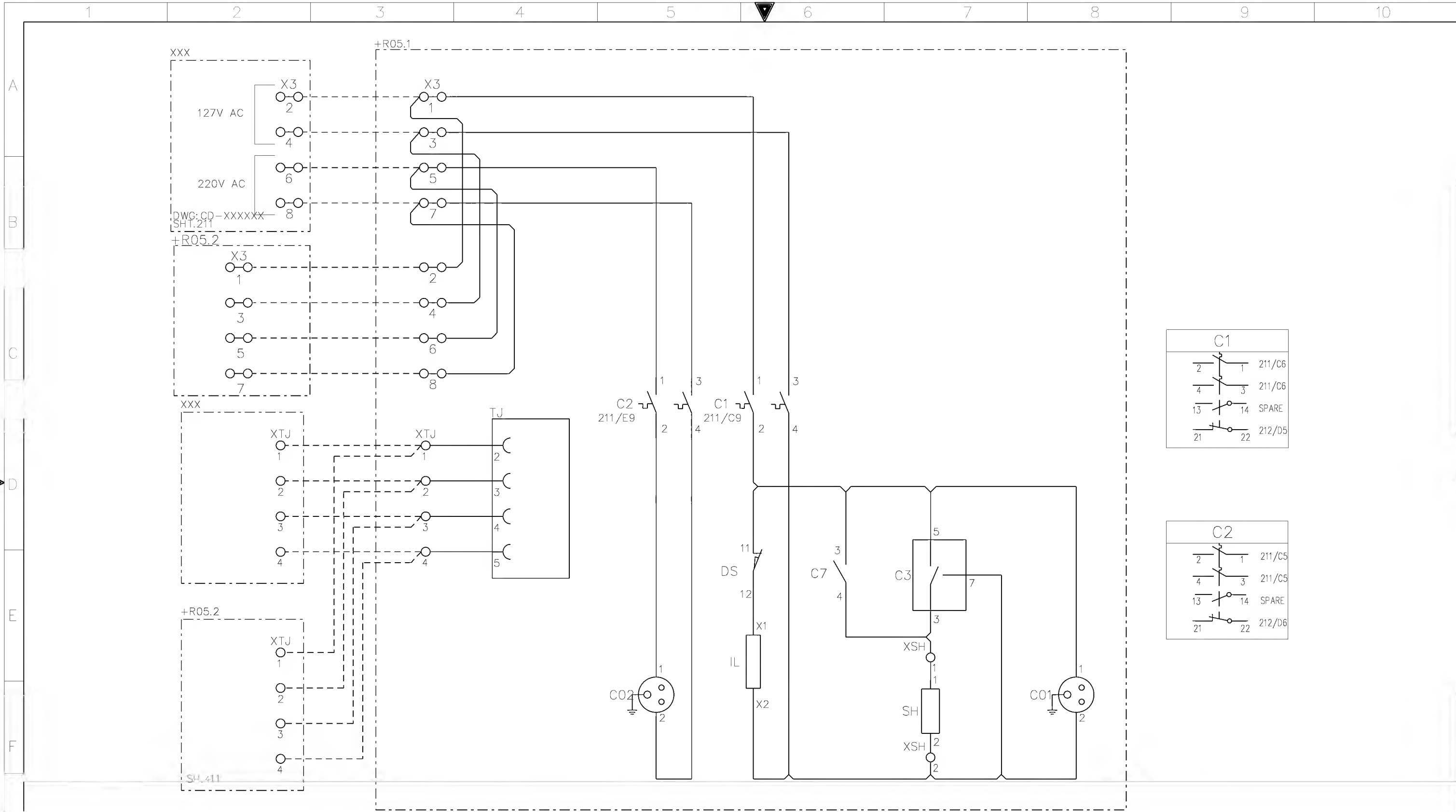
CT	RATIO	CLASS	VK IN VOLTS	IMAG @ VK IN mA	RCT IN (OHMS)	BURDEN IN VA	FUNCTION
T1-1	3000/1A	5P20	—	<25	<10	30	PROTECTION & CONTROL IED
T1-2	3000/1A	10P10	—	<25	<10	30	IED3 (13.8kV STUCK BKR PROTECTION)
T2-1	3000/1A	X	765	<25	<10	—	IED1 (TRANSFORMER PROTECTION)
T2-2	3000/1A	X	765	<25	<10	—	IED2 (TRANSFORMER PROTECTION)
T2-3	3000/1A	0.2Fs5	—	—	—	15	AMR

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY JKR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED _____
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

PRIMARY SYSTEM (GT-1)
132/13.8KV GT-1 RELAY PANEL-1/2
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		نقل الكهرباء	
National Grid sa		National Grid sa	
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			211
			01



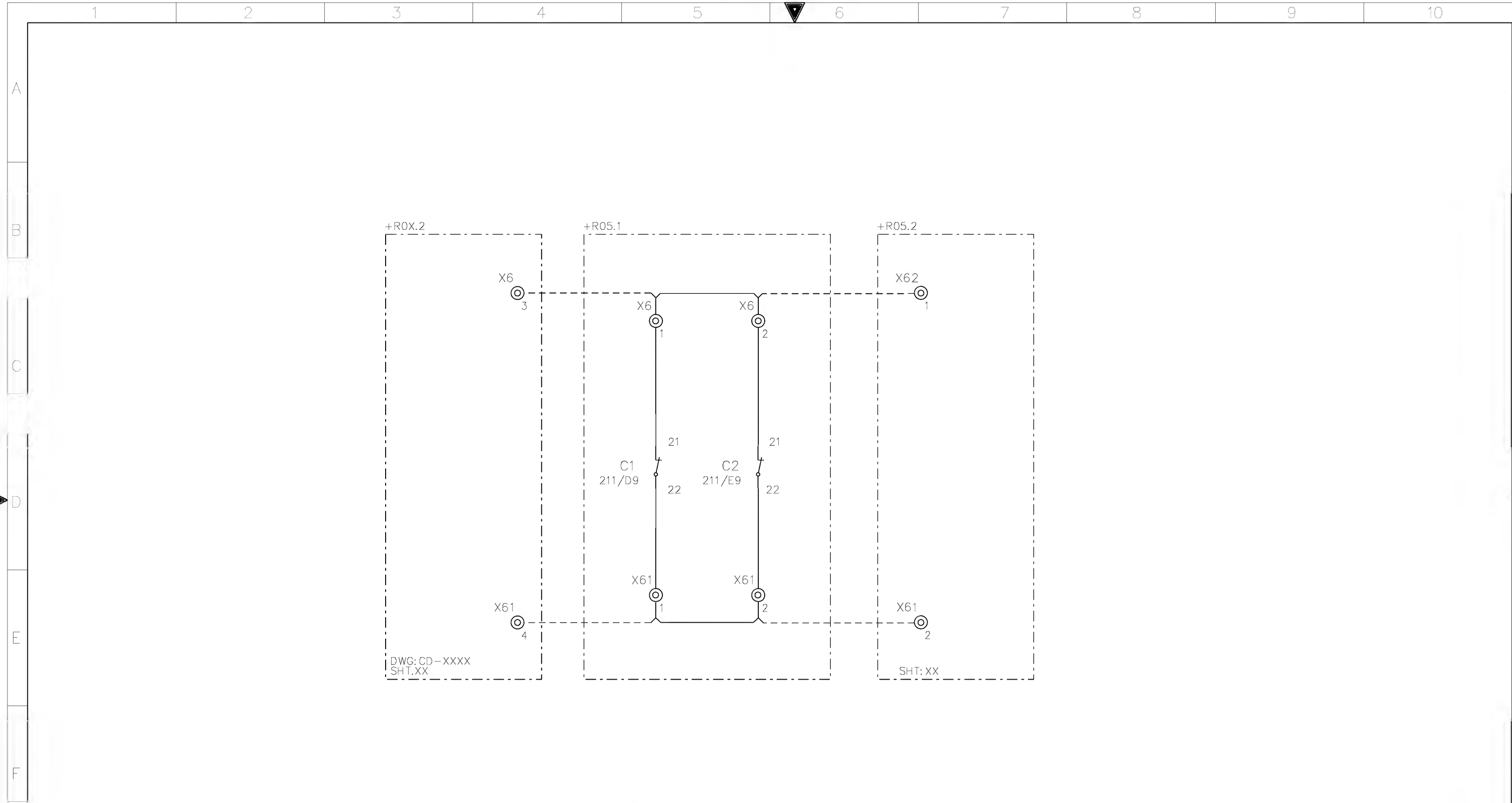
AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY JKR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

AC SUPPLY FOR ILLUMINATION & POWER SOCKET
132/13.8kV GT-1 RELAY PANEL-1 +R05.1
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء
National Grid sa

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322928	SHT 211	CONT. 212
				01



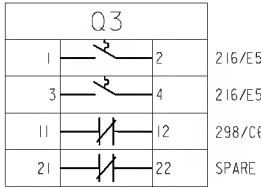
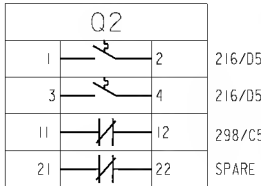
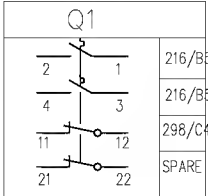
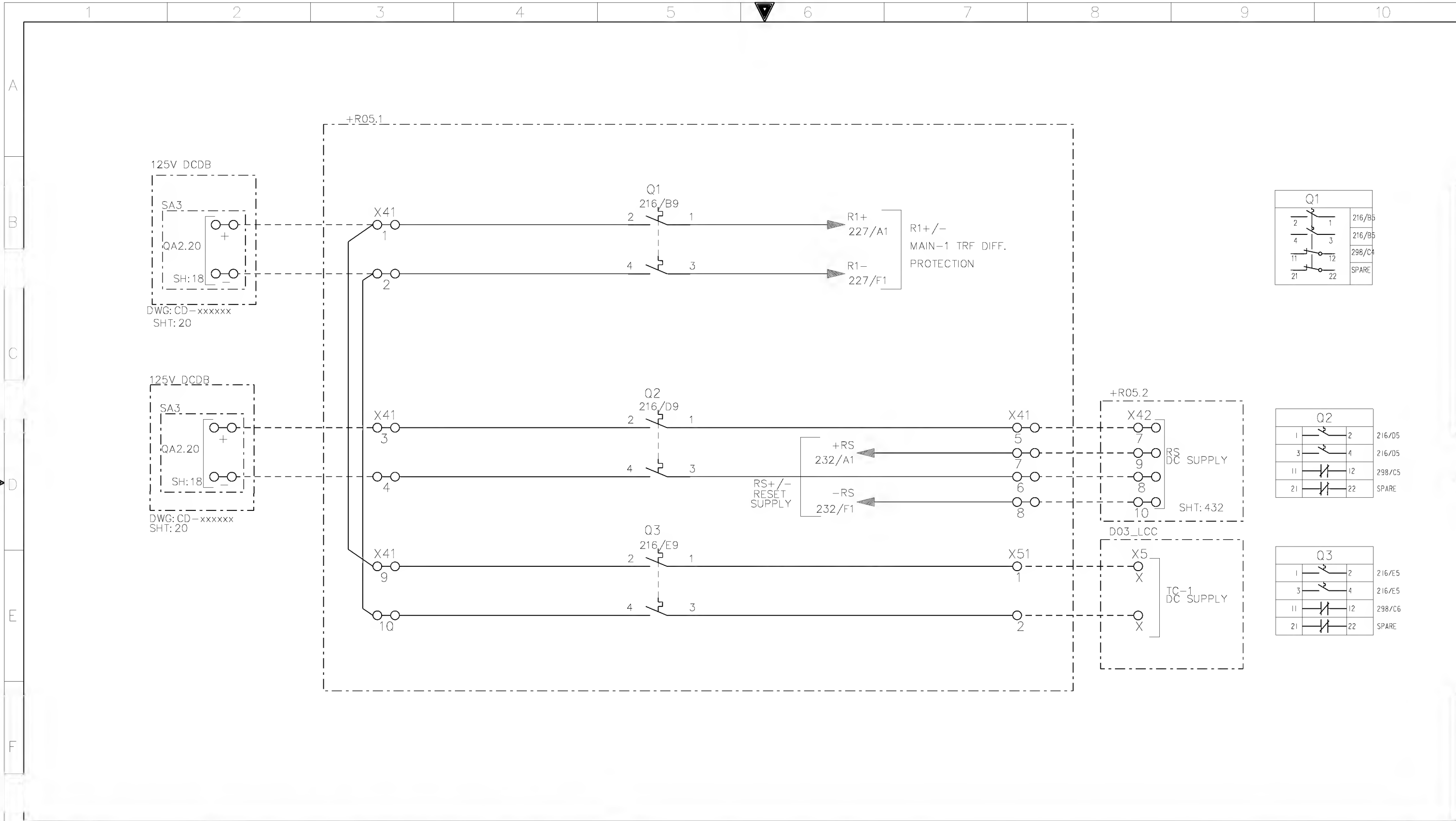
AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY JKR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

CUB.LIGHTING,HEATER&SOKET ALARM CKT.
132/13.8kV GT-1 RELAY PANEL-1 +R05.1
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء
National Grid sa

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322928	SHT 212	CONT. 216
				01

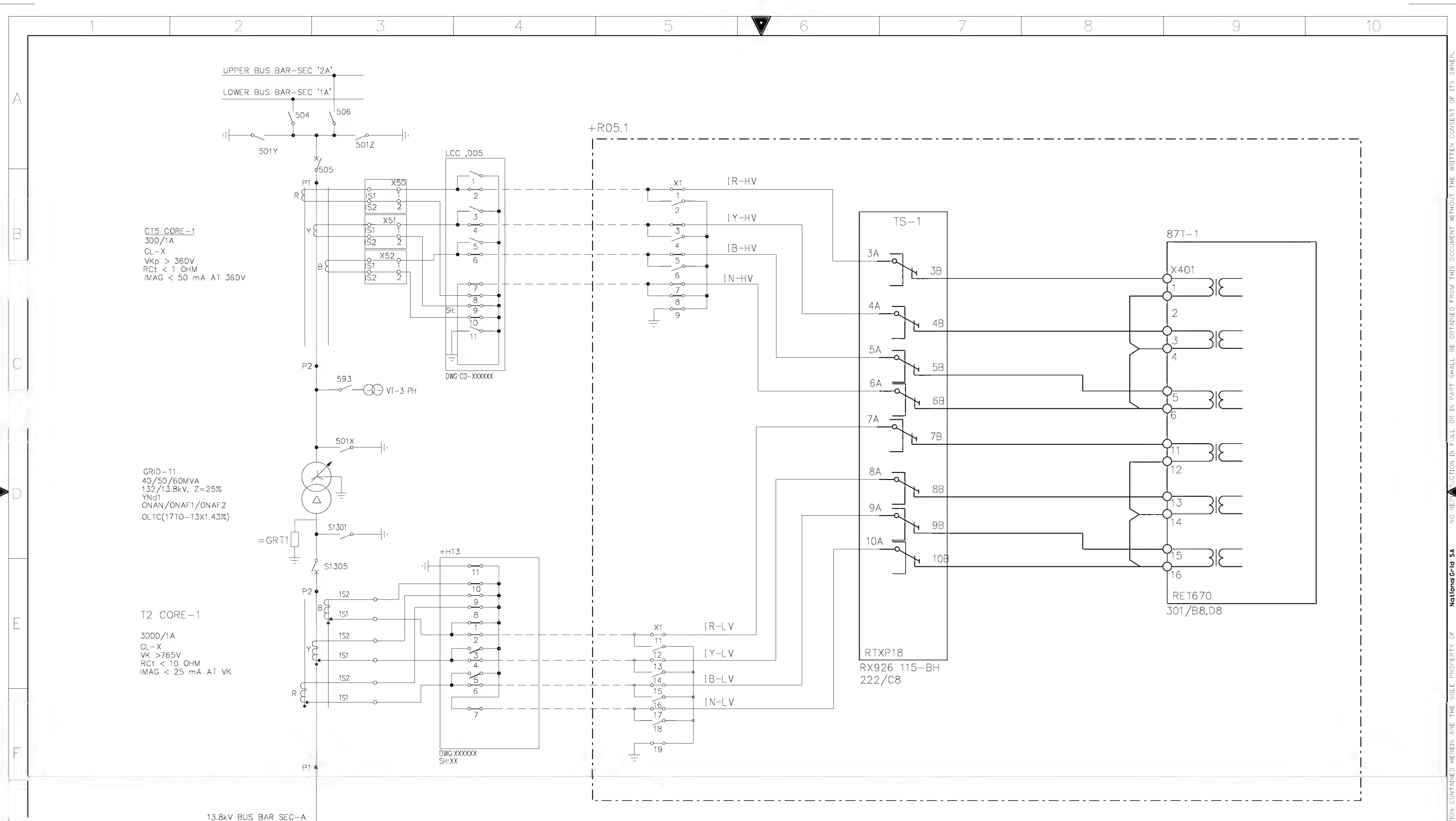


AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY JKR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

DC SUPPLY DISTRIBUTION
132/13.8kV GT-1 RELAY PANEL-1 +R05.1
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

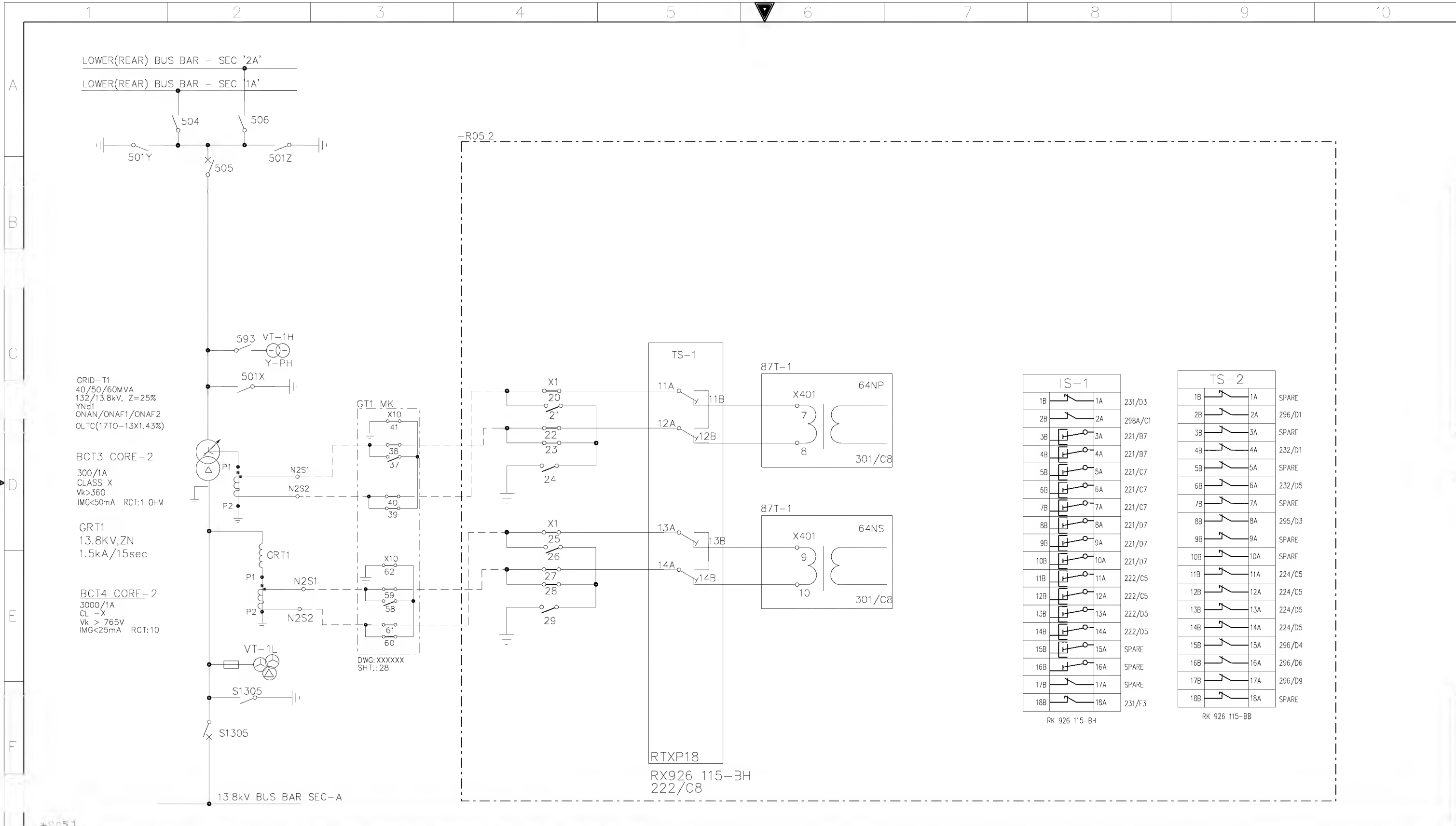
الشركة الوطنية لنقل الكهرباء		National Grid sa		
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322928	216	01




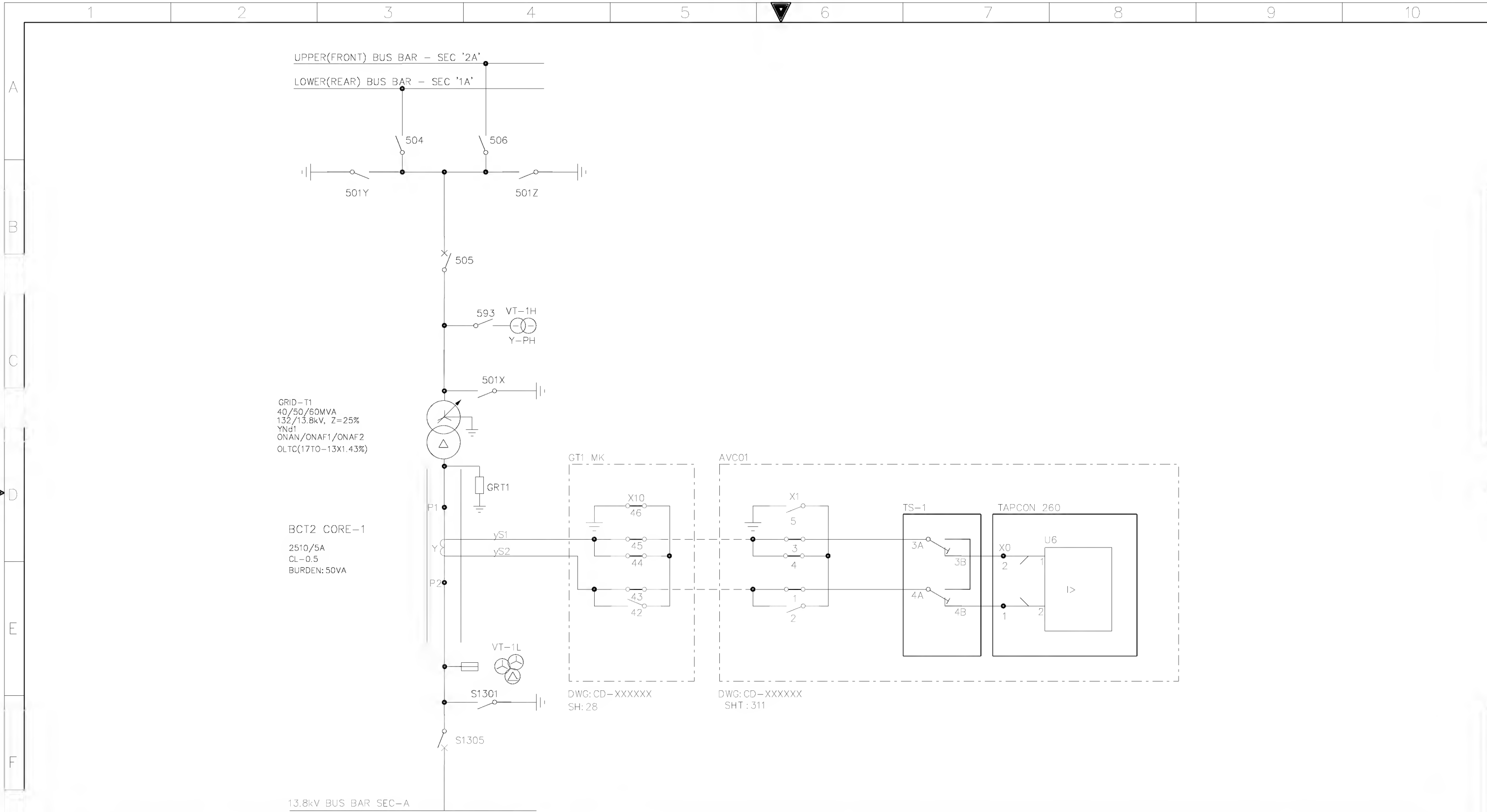
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656	
01	13 49	FACTORY ASBUILT	DRAWN BY RIZ		CHECKED BY JKR	
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED _____	
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC	

CT CIRCUITS 87T-1 RELAY
132/13.8kV GT-1 RELAY PANEL-1 +R05.1
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء				نقل الكهرباء	
				National Grid sa	
INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	
-	C421	CD-322928		SHT	CONT.
				221	222
				01	



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		CT CIRCUITS 87T-1 RELAY		<div><div>الشركة الوطنية لنقل الكهرباء</div><div>نقل الكهرباء</div><div>National Grid sa</div></div>										
				DRAWN BY RIZ CHECKED BY JKR		132/13.8kV GT-1 RELAY PANEL-1 +R05.1													
01		13 49		FACTORY ASBUILT		S/S 8709-132/13.8KV IN AL-KHARJ CITY													
00		13 04		FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY		INDEX		PLANT NO.		DRAWING NUMBER		SHEET NO.		REV. NO.	
REV. NO.		DATE		DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-		C421		CD-322928		SHT 222		CONT. 223	
																		01	

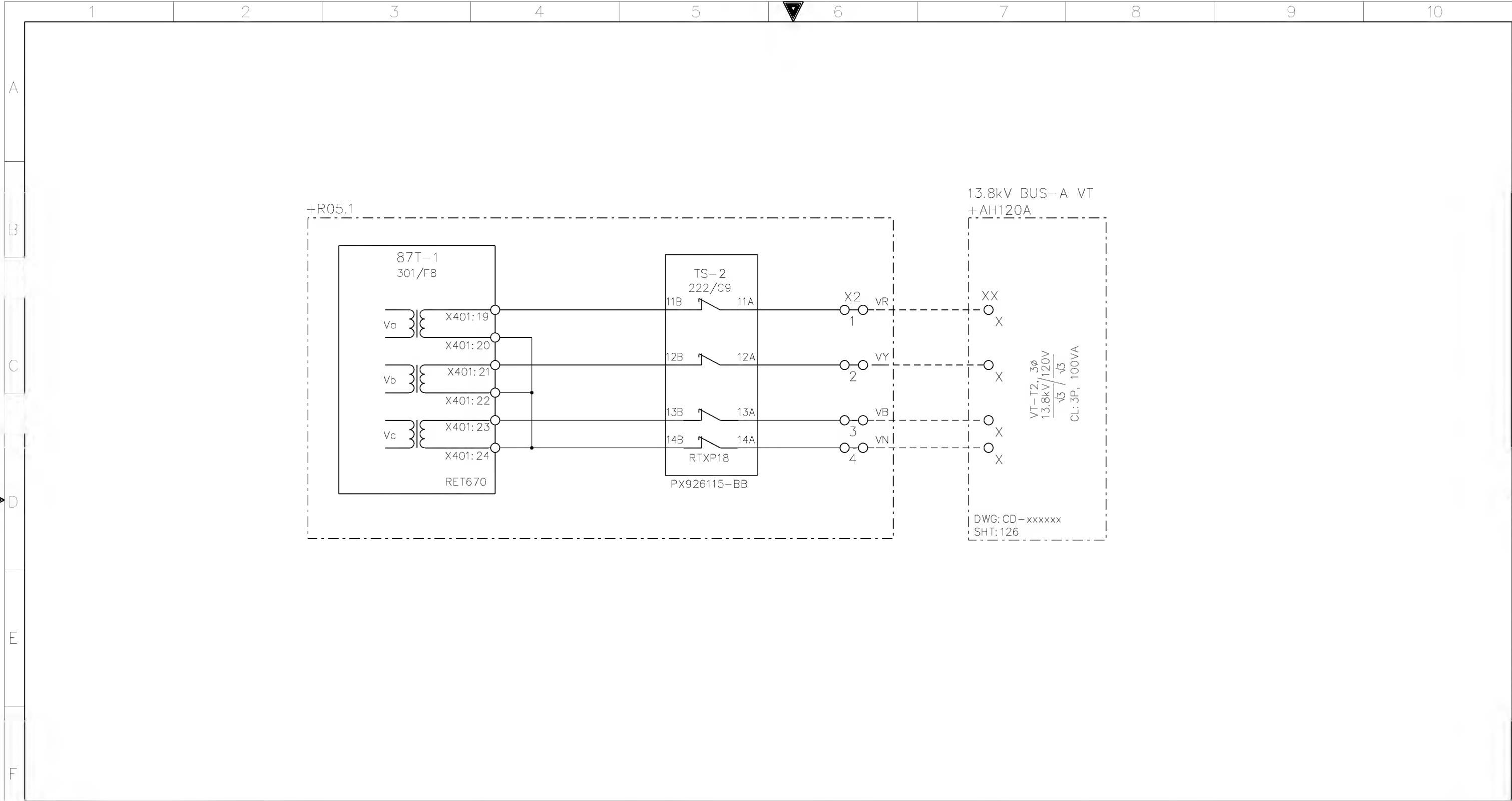



+R05.1
AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

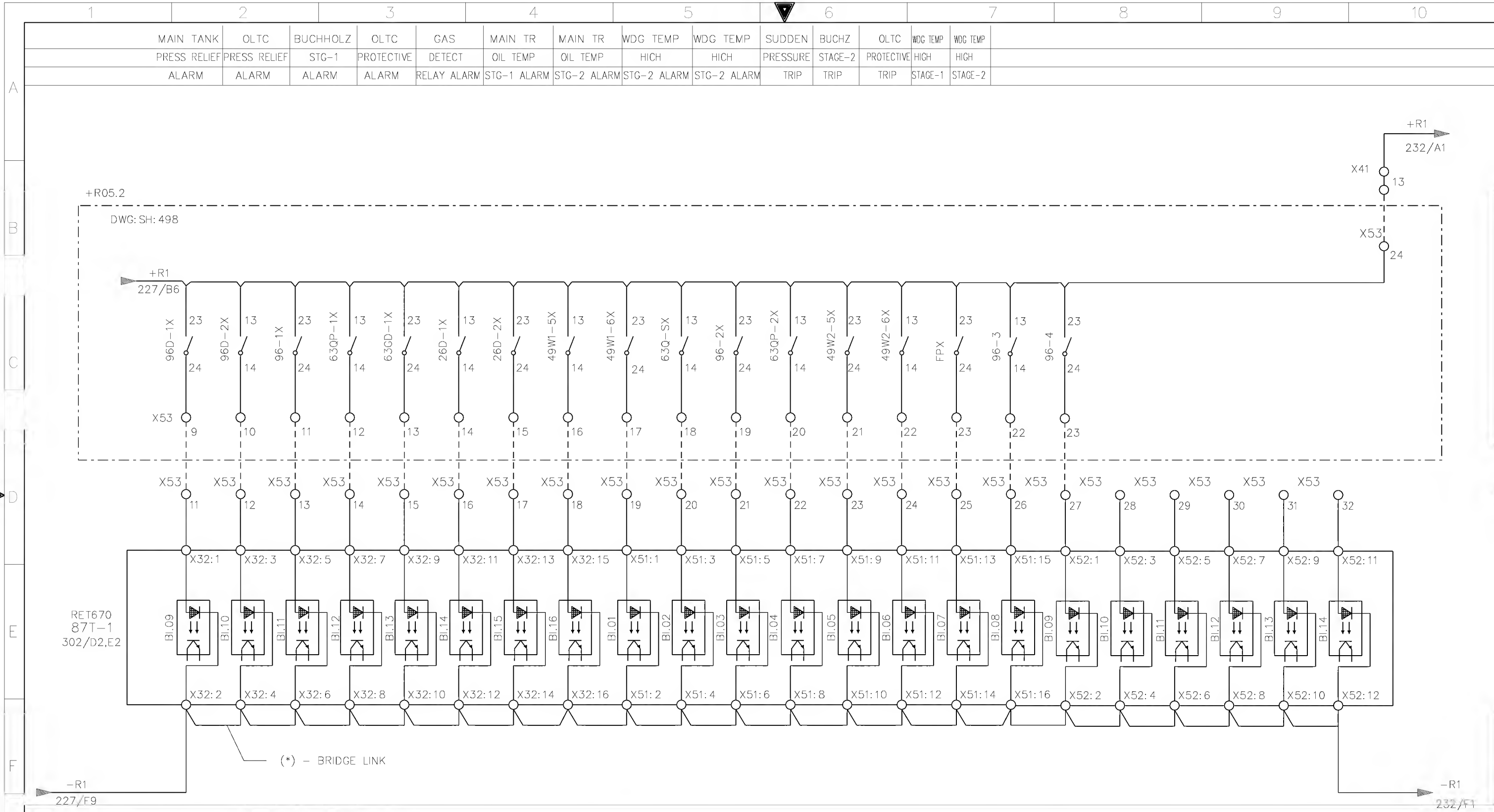
01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY JKR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

CT CIRCUITS 87T-1 RELAY
132/13.8kV GT-1 RELAY PANEL-1 +R05.1
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

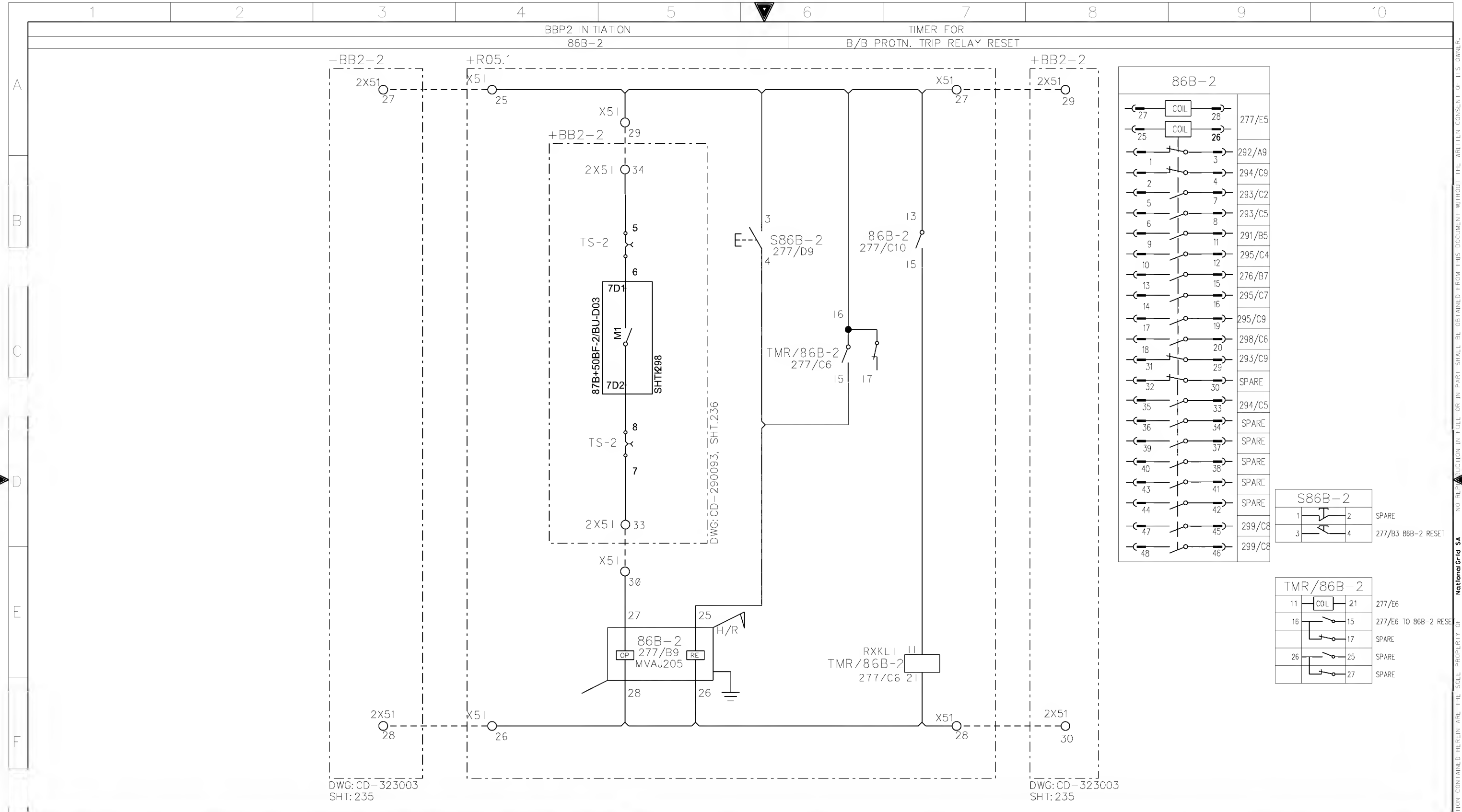
الشركة الوطنية لنقل الكهرباء National Grid sa				
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322928	SHT 223	CONT. 224
			01	




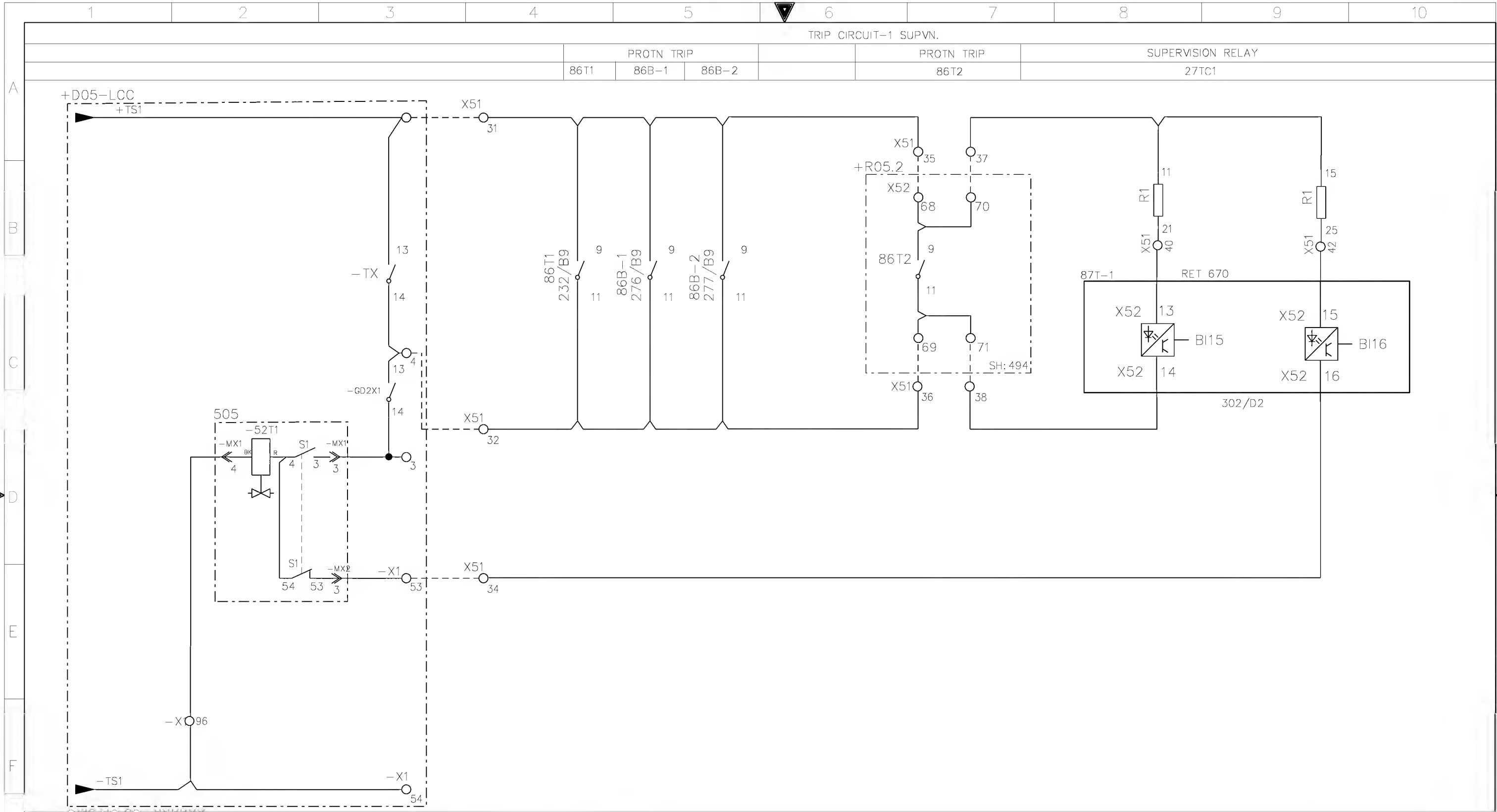
+R05.1															
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		VT CIRCUITS 87T-1 RELAY			<div>الشركة الوطنية لنقل الكهرباء</div> <div> نقل الكهرباء</div> <div>National Grid sa</div>					
			DRAWN BY RIZ CHECKED BY JKR		132/13.8kV GT-1 RELAY PANEL-1 +R05.1										
01 13 49 FACTORY ASBUILT			DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY		INDEX		PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.	
00 13 04 FOR APPROVAL			OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-322928		SHT	CONT.	224 227		01
REV. NO. DATE DESCRIPTION															



AS-BUILT BY _____ DATE _____			CONTRACT NO. 1113/113/00		JOB ORDER NO. S-13656		87T-1 BINARY INPUTS		<div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>							
			DRAWN BY RIZ CHECKED BY JKR				132/13.8kv GT-1 RELAY PANEL-1 +R05.1									
01	13 49	FACTORY ASBUILT		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY		INDEX		PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.	
00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-		C421	CD-322928		SHT 228		CONT. 232	
REV. NO.		DATE		DESCRIPTION											01	



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		BUSBAR PROTN-2 TRIP RELAY CIRCUIT		<div><div></div><div>نقل الكهرباء الشركة الوطنية لنقل الكهرباء National Grid sa</div></div>											
			DRAWN BY <u>RIZ</u> CHECKED BY <u>JKR</u>		132/13.8kV GT-1 RELAY PANEL-1 +R05.1		132/13.8kV GT-1 RELAY PANEL-1 +R05.1													
01 13 49 FACTORY ASBUILT			DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY		S/S 8709-132/13.8KV IN AL-KHARJ CITY		INDEX		PLANT NO.		DRAWING NUMBER		SHEET NO.		REV. NO.			
00 13 04 FOR APPROVAL			OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>		RIYADH		SAUDI ARABIA		-		C421		CD-322928		SHT		CONT.			
REV. NO.			DATE			DESCRIPTION									277			291		
																		01		



DWG.NO.CD=XXXXXX
SHT.XX

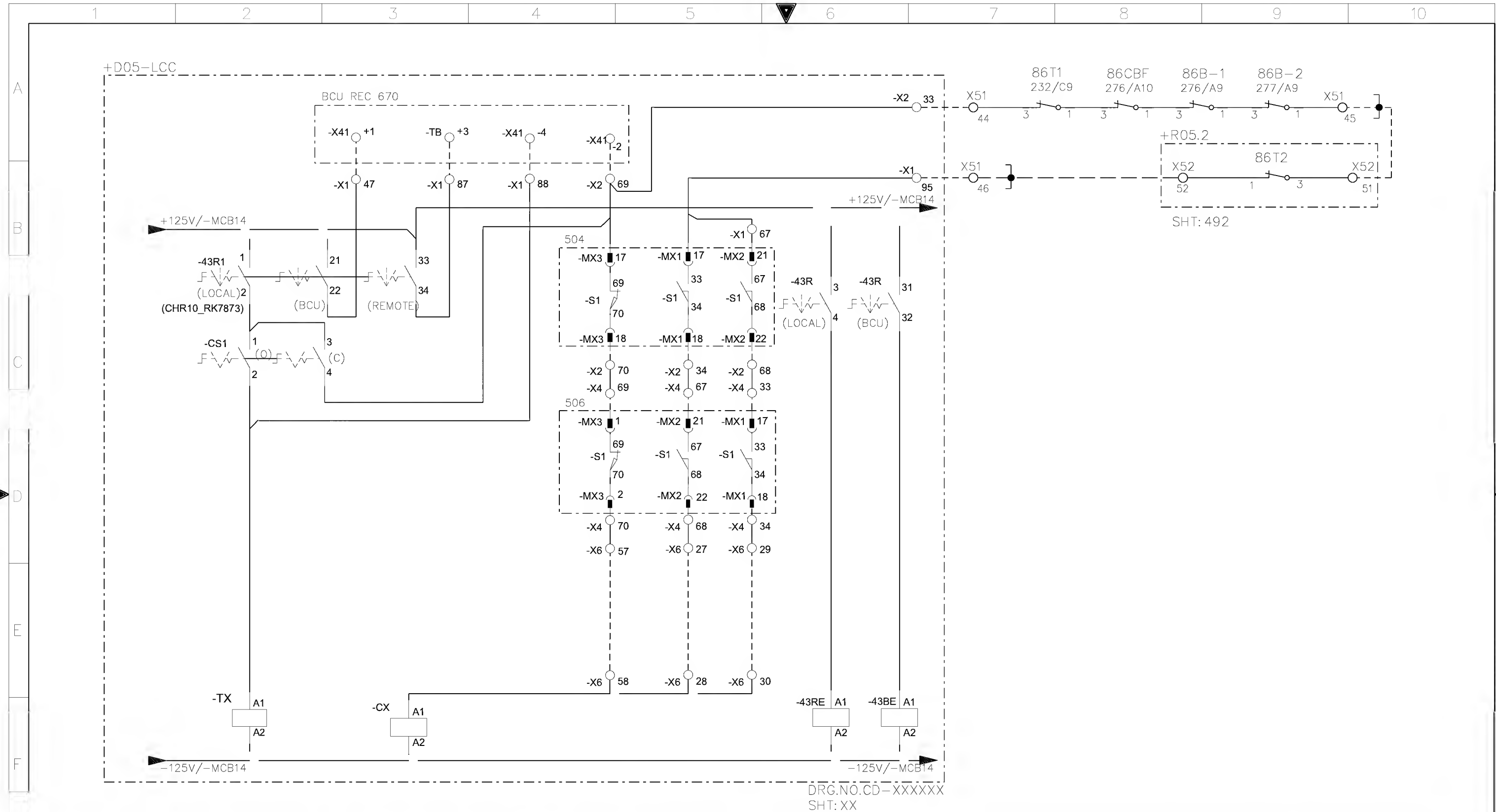
+R05.1

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY JKR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

TRIP COIL-1 SUPERVSION CIRCUIT
132/13.8kv GT-1 RELAY PANEL-1 +R05.1
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

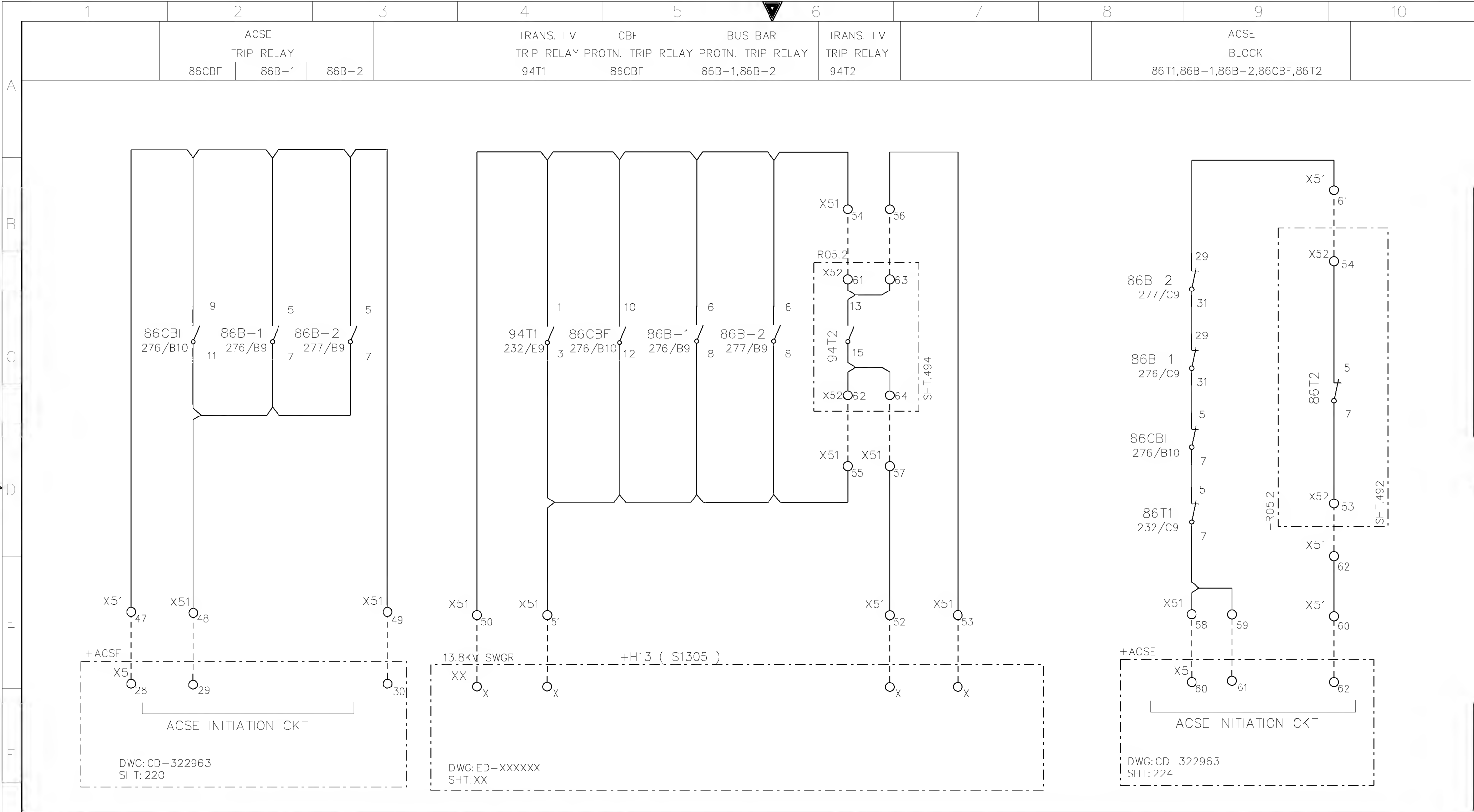
الشركة الوطنية لنقل الكهرباء		نقل الكهرباء		National Grid sa	
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.	
-	C421	CD-322928	SHT 291	CONT. 292	01



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656	
01	13 49	FACTORY ASBUILT	DRAWN BY RIZ		CHECKED BY JKR	
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED _____	
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC	

CB K305 CLOSE BLOCK CIRCUIT	
132/13.8kV GT-1 RELAY PANEL-1 +R05.1	
S/S 8709-132/13.8KV IN AL-KHARJ CITY	
RIYADH SAUDI ARABIA	

الشركة الوطنية لنقل الكهرباء				نقل الكهرباء	
				National Grid SA	
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
-	C421	CD-322928	SHT	CONT.	01
			292	293	



AS-BUILT BY _____ DATE _____

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

01

13 49

FACTORY ASBUILT

00

13 04

FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY RIZ

CHECKED BY JKR

DATE STARTED 24.01.2013

DATE COMPLETED

OPRG. DEPT. CTPD

ENG. DEPT. AUT-PSAC

CONTACTS FOR ACSE INITIATION & LV TRIPPING TC

132/13.8kV GT-1 RELAY PANEL-1 +R05.1

S/S 8709-132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

نقل الكهرباء

الشركة الوطنية لنقل الكهرباء

National Grid sa

INDEX

PLANT NO.

DRAWING NUMBER

SHEET NO.

REV. NO.

-

C421

CD-322928

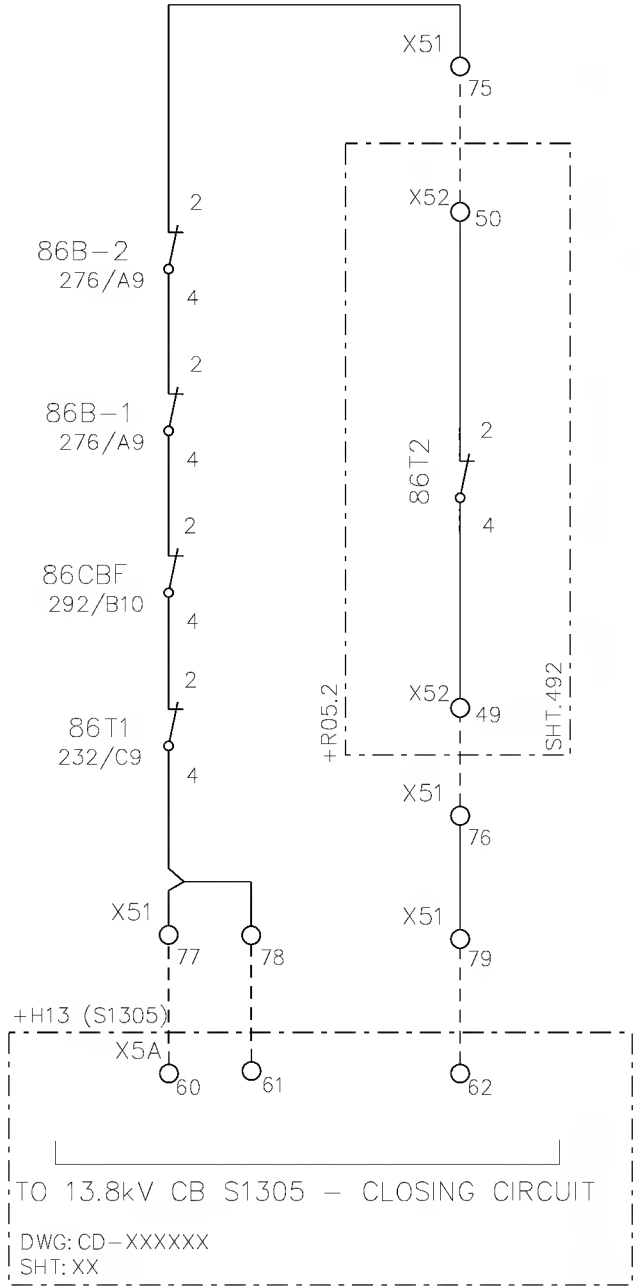
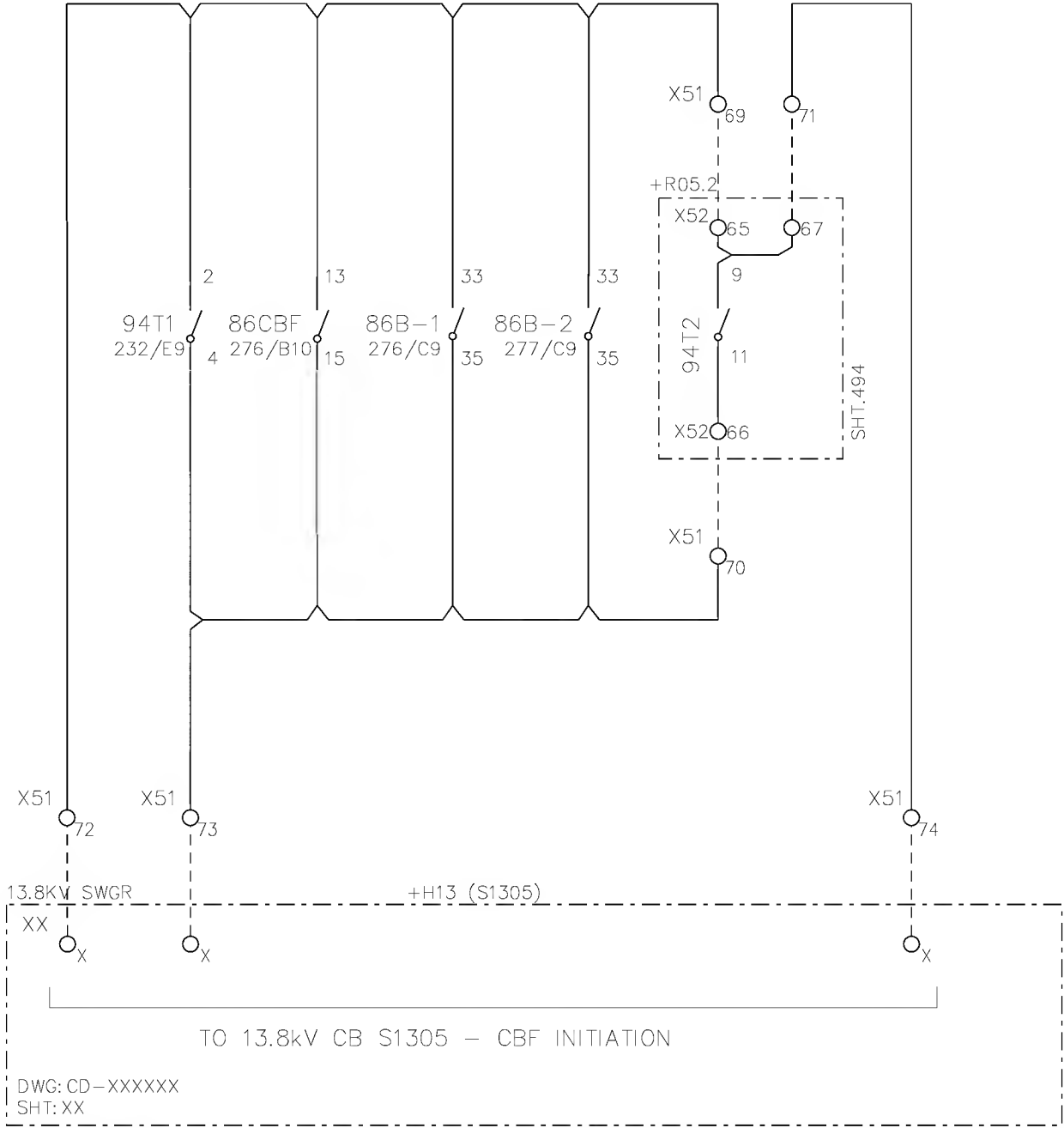
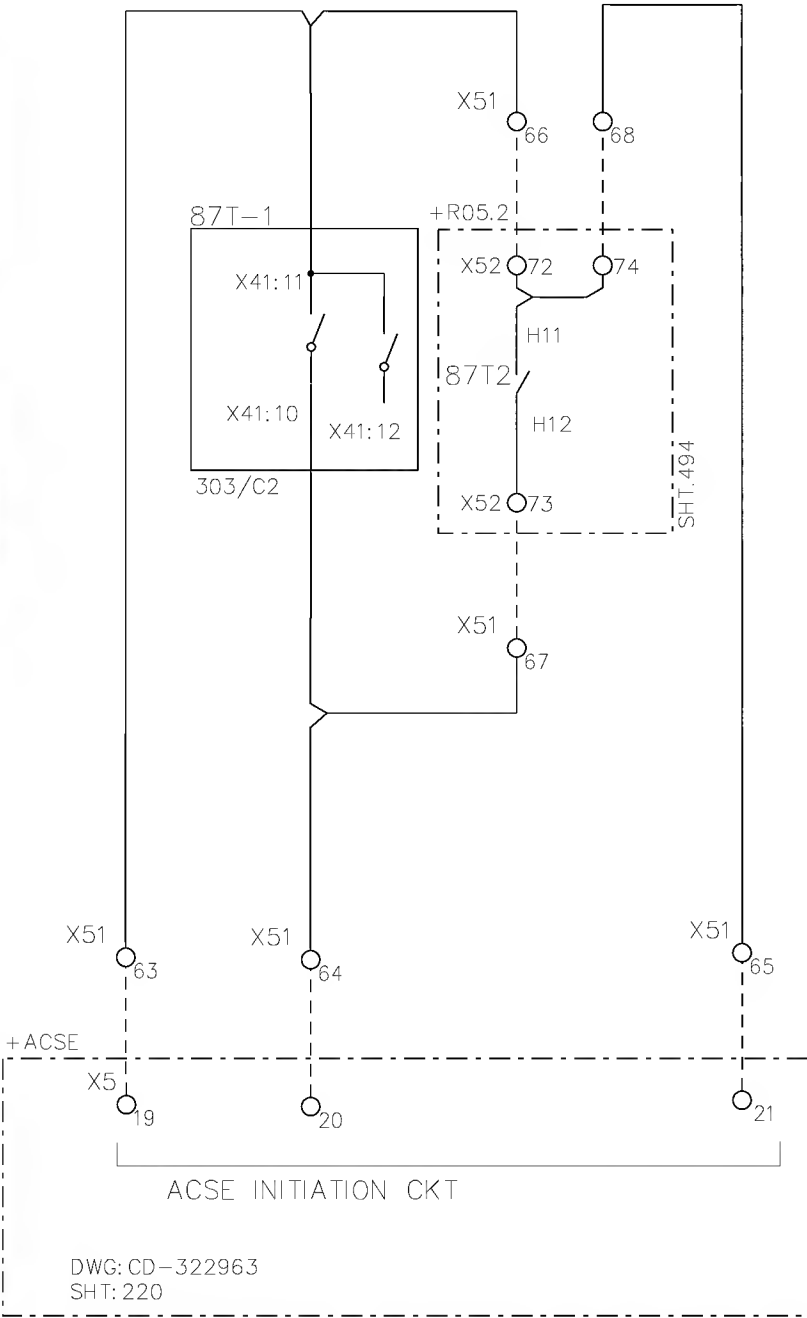
SHT

CONT.

01


1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

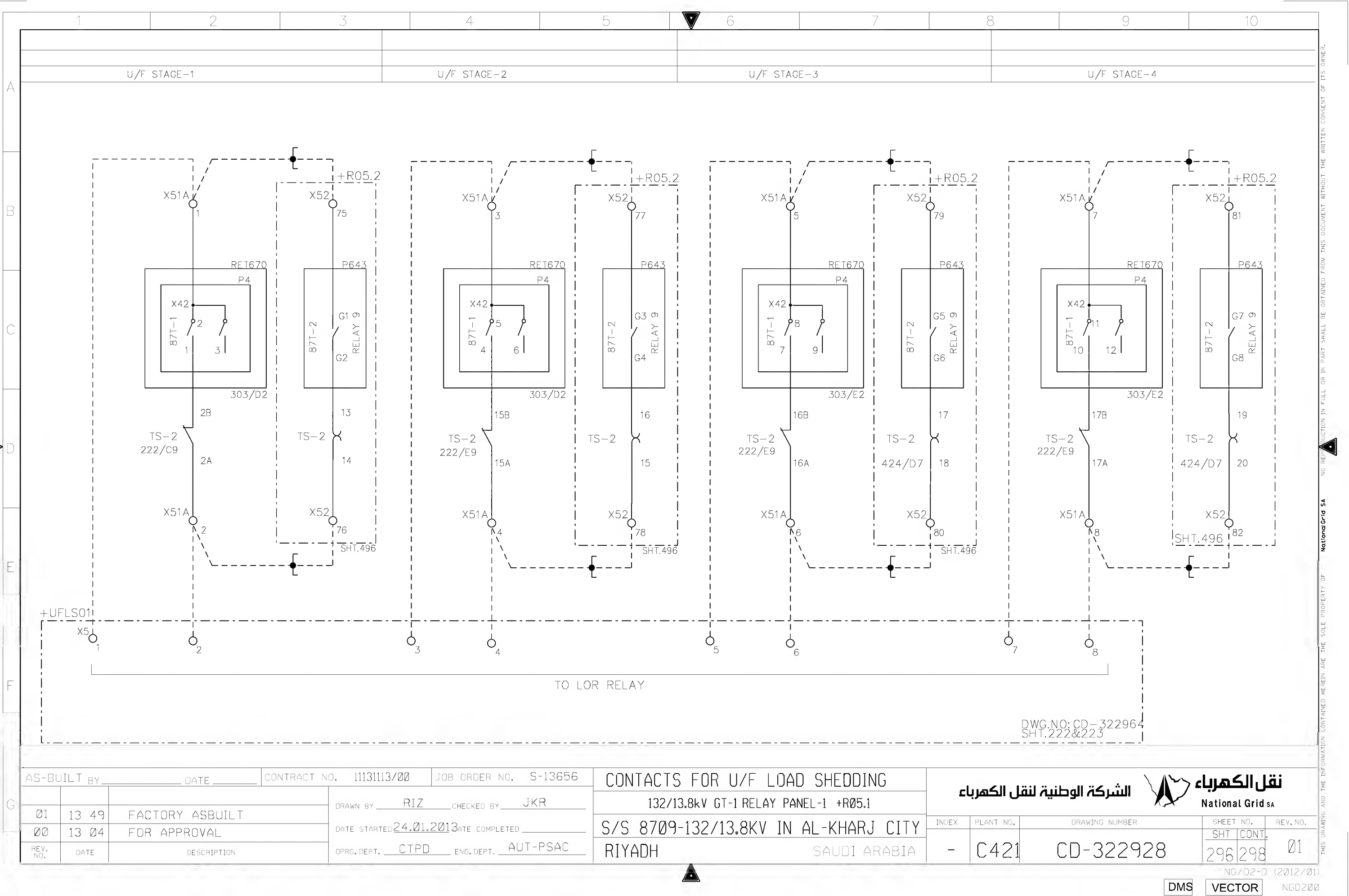
			TRANS. LV	CBF	BUS BAR	TRANS. LV		LV CB	
	ACSE INITIATION CKT		TRIP RELAY	PROTN. TRIP RELAY	PROTN. TRIP RELAY	TRIP RELAY		CLOSE BLOCK	
	87T-1 87T-2		94T1	86CBF	86B-1,86B-2	94T2		86T1,86B-1,86B-2,86CBF,86T2	

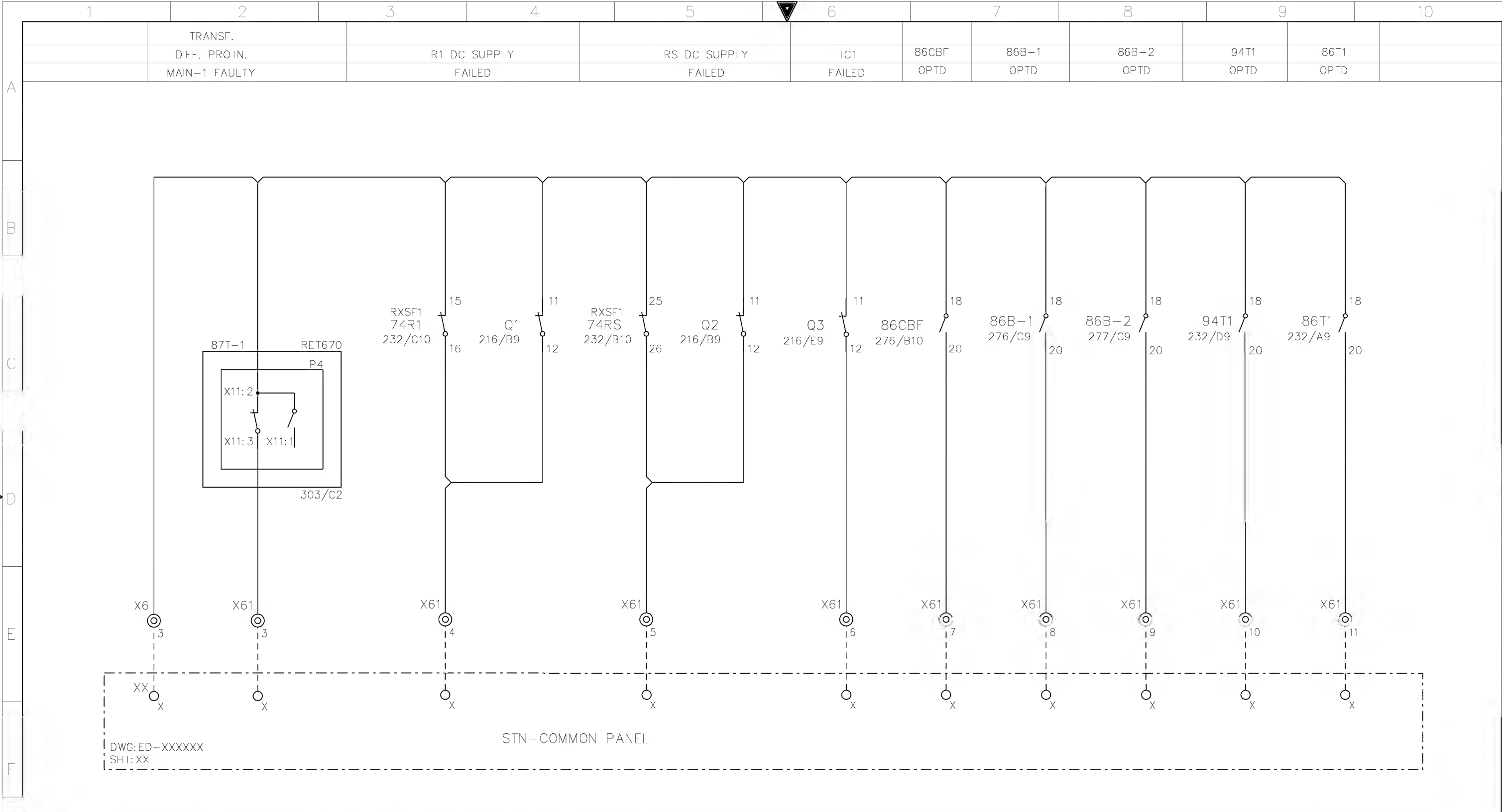


AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656	
01	13 49	FACTORY ASBUILT	DRAWN BY RIZ		CHECKED BY JKR	
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED _____	
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC	

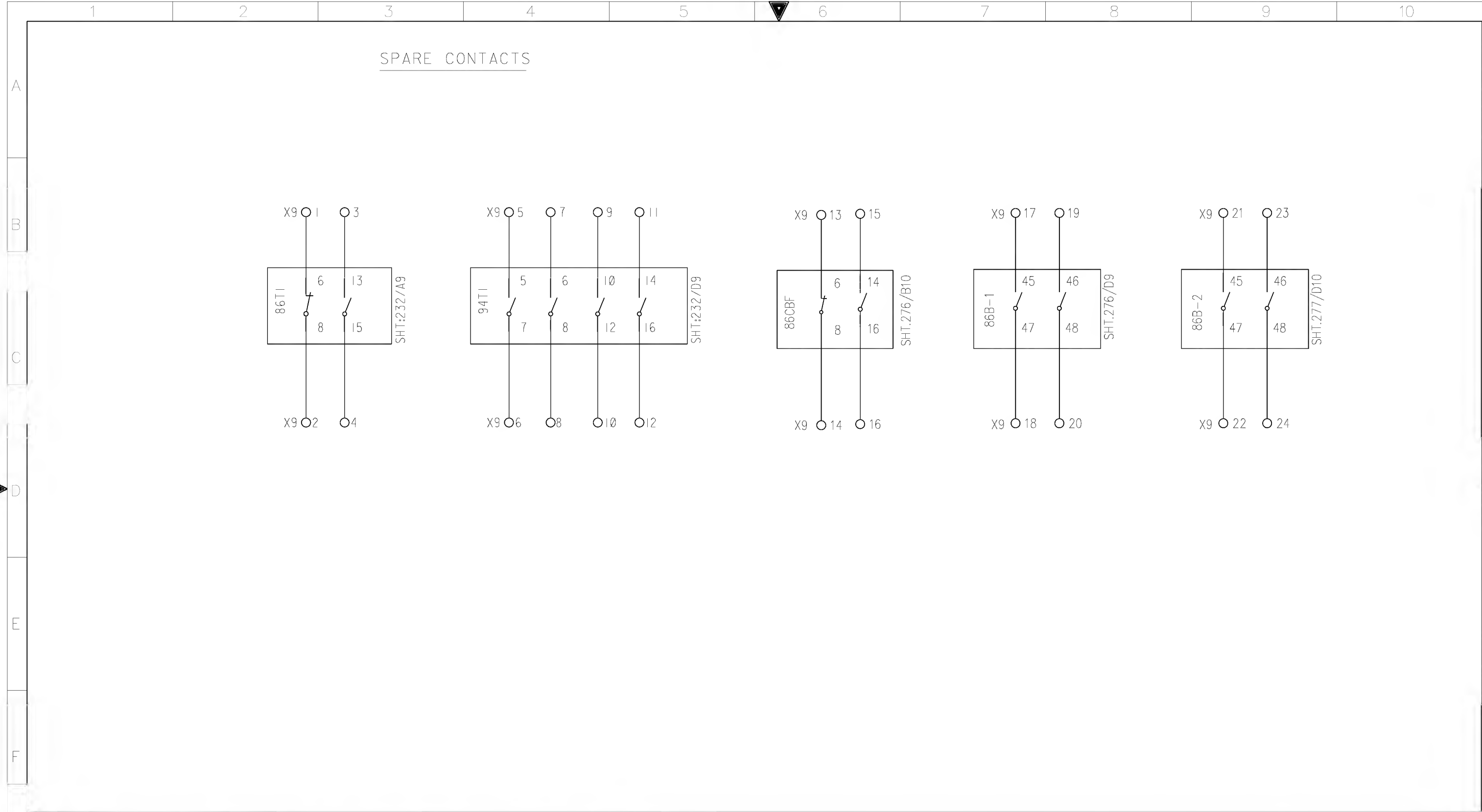
ACSE INI & LV CLOSE BLK CIRCUIT	
132/13.8kV GT-1 RELAY PANEL-1 +R05.1	
S/S 8709-132/13.8KV IN AL-KHARJ CITY	
RIYADH SAUDI ARABIA	

الشركة الوطنية لنقل الكهرباء			 نقل الكهرباء National Grid SA		
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
-	C421	CD-322928	SHT 294	CONT. 295	01





G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		STN-COMMON ALARM CIRCUIT		الشركة الوطنية لنقل الكهرباء نقل الكهرباء National Grid sa									
							132/13.8kV GT-1 RELAY PANEL-1 +R05.1		INDEX		PLANT NO.		DRAWING NUMBER		SHEET NO.		REV. NO.	
	01 13 49		FACTORY ASBUILT		DRAWN BY RIZ CHECKED BY JKR		S/S 8709-132/13.8KV IN AL-KHARJ CITY		-		C421		CD-322928		SHT		CONT.	
	00 13 04		FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		RIYADH SAUDI ARABIA								298		299	
	REV. NO.		DATE		DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC											



AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY JKR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

LOR SPARE CONTACTS

132/13.8kV GT-1 RELAY PANEL-1 +R05.1

S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



National Grid sa

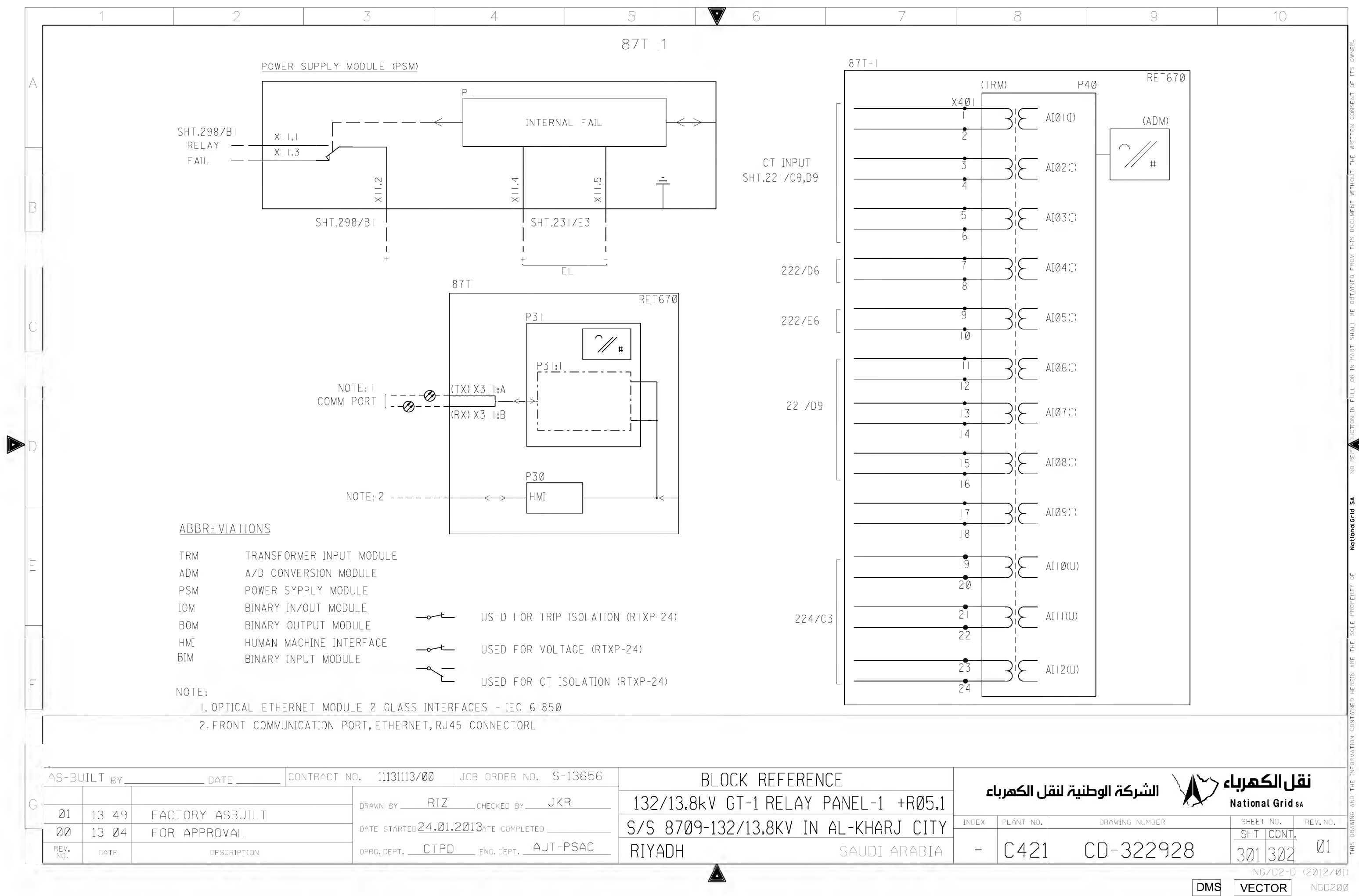
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322928	SHT 299 CONT. 301	01

NG/D2-D (2012/01)

DMS

VECTOR

NGD200



1

2

3

4

5

6

7

8

9

10

A

B

C

D

E

F

87T-1

BINARY INPUT CARD

BIM P3
RET670

LOCATION=P3

PLANT ADAPTED
CONFIGURATION

SHT.227/E3

+ - - - X31

1

BI.01

//

VT MCB FAIL

+ - - - 2

3

BI.02

//

SPARE

+ - - - 3

4

BI.03

//

SPARE

+ - - - 4

5

BI.04

//

SPARE

+ - - - 5

6

BI.05

//

SPARE

+ - - - 6

7

BI.06

//

SPARE

+ - - - 7

8

BI.07

//

SPARE

+ - - - 8

9

BI.08

//

SPARE

+ - - - 9

10

BI.09

//

SPARE

+ - - - 10

11

BI.10

//

SPARE

+ - - - 11

12

BI.11

//

SPARE

+ - - - 12

13

BI.12

//

SPARE

+ - - - 13

14

BI.13

//

SPARE

+ - - - 14

15

BI.14

//

SPARE

+ - - - 15

16

BI.15

//

SPARE

+ - - - 16

17

BI.16

//

SPARE

SHT.228/E4

+ - - - X32

1

BI.09

//

SPARE

+ - - - 2

3

BI.10

//

SPARE

+ - - - 3

4

BI.11

//

SPARE

+ - - - 4

5

BI.12

//

SPARE

+ - - - 5

6

BI.13

//

SPARE

+ - - - 6

7

BI.14

//

SPARE

+ - - - 7

8

BI.15

//

SPARE

+ - - - 8

9

BI.16

//

SPARE

+ - - - 9

10

BI.17

//

SPARE

+ - - - 10

11

BI.18

//

SPARE

+ - - - 11

12

BI.19

//

SPARE

+ - - - 12

13

BI.20

//

SPARE

+ - - - 13

14

BI.21

//

SPARE

+ - - - 14

15

BI.22

//

SPARE

+ - - - 15

16

BI.23

//

SPARE

+ - - - 16

17

BI.24

//

SPARE

87T-1

BINARY INPUT CARD

BIM P5
RET670

LOCATION=P6

PLANT ADAPTED
CONFIGURATION

SHT.228/E8

+ - - - X51

1

BI.01

//

SPARE

+ - - - 2

3

BI.02

//

SPARE

+ - - - 3

4

BI.03

//

SPARE

+ - - - 4

5

BI.04

//

SPARE

+ - - - 5

6

BI.05

//

SPARE

+ - - - 6

7

BI.06

//

SPARE

+ - - - 7

8

BI.07

//

SPARE

+ - - - 8

9

BI.08

//

SPARE

+ - - - 9

10

BI.09

//

SPARE

+ - - - 10

11

BI.10

//

SPARE

+ - - - 11

12

BI.11

//

SPARE

+ - - - 12

13

BI.12

//

SPARE

+ - - - 13

14

BI.13

//

SPARE

+ - - - 14

15

BI.14

//

SPARE

+ - - - 15

16

BI.15

//

SPARE

+ - - - 16

17

BI.16

//

SPARE

SHT.291/C9,C10

+ - - - X52

1

BI.09

//

SPARE

+ - - - 2

3

BI.10

//

SPARE

+ - - - 3

4

BI.11

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SPARE

+ - - - 4

5

BI.12

//

SPARE

+ - - - 5

6

BI.13

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SPARE

+ - - - 6

7

BI.14

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SPARE

+ - - - 7

8

BI.15

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SPARE

+ - - - 8

9

BI.16

//

SPARE

+ - - - 9

10

BI.17

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SPARE

+ - - - 10

11

BI.18

//

SPARE

+ - - - 11

12

BI.19

//

SPARE

+ - - - 12

13

BI.20

//

SPARE

+ - - - 13

14

BI.21

//

SPARE

+ - - - 14

15

BI.22

//

SPARE

+ - - - 15

16

BI.23

//

SPARE

+ - - - 16

17

BI.24

//

SPARE

AS-BUILT BY _____ DATE _____

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

01

13 49

FACTORY ASBUILT

00

13 04

FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY RIZ

CHECKED BY JKR

DATE STARTED 24.01.2013

DATE COMPLETED _____

OPRG. DEPT. CTPD

ENG. DEPT. AUT-PSAC

BLOCK REFERENCE

132/13.8kV GT-1 RELAY PANEL-1 +R05.1

S/S 8709-132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

National Grid sa

INDEX

PLANT NO.

DRAWING NUMBER

SHEET NO.

REV. NO.

-

C421

CD-322928

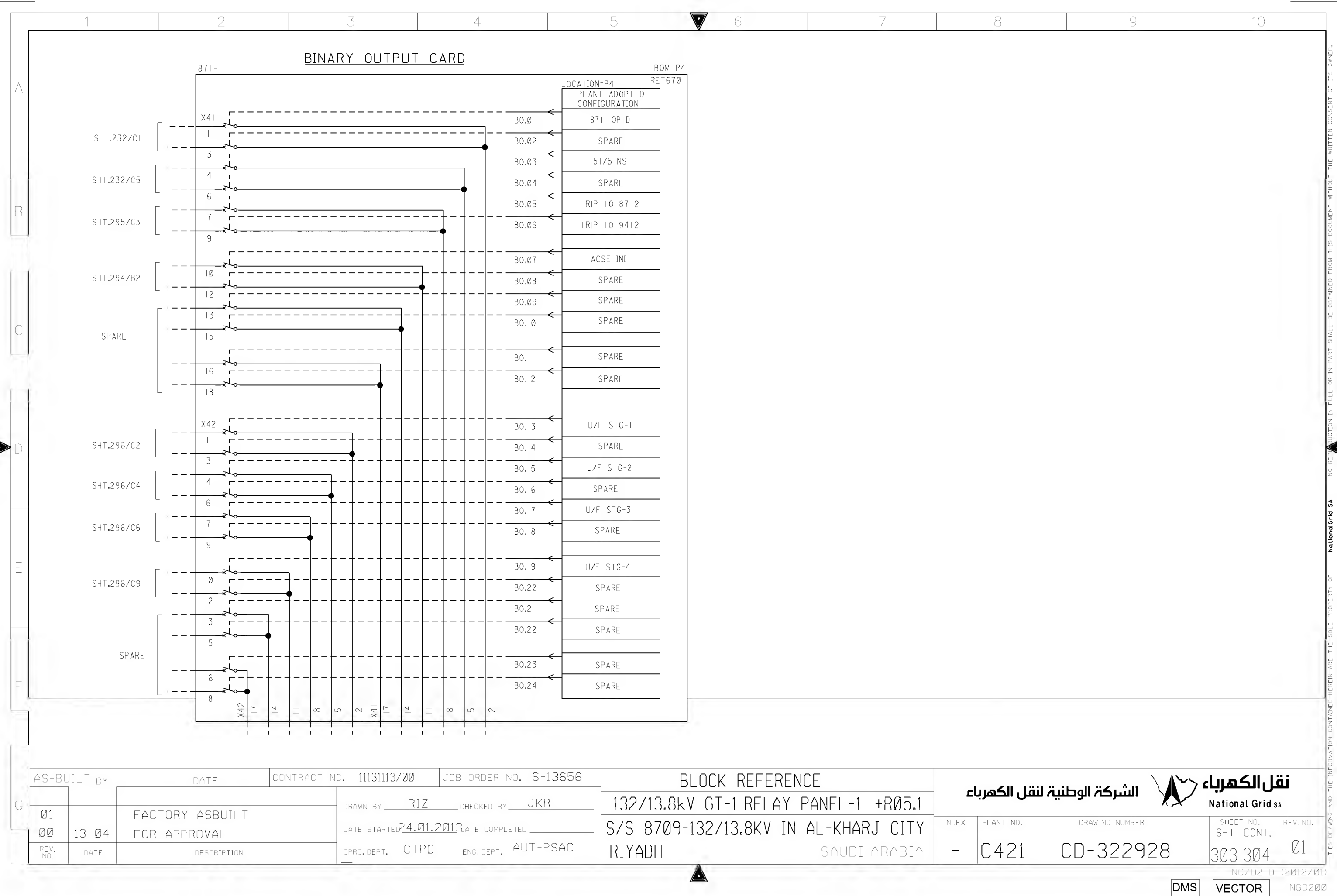
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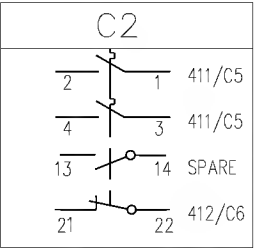
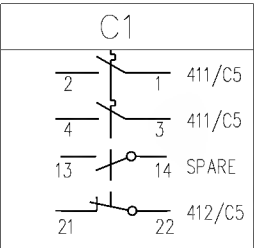
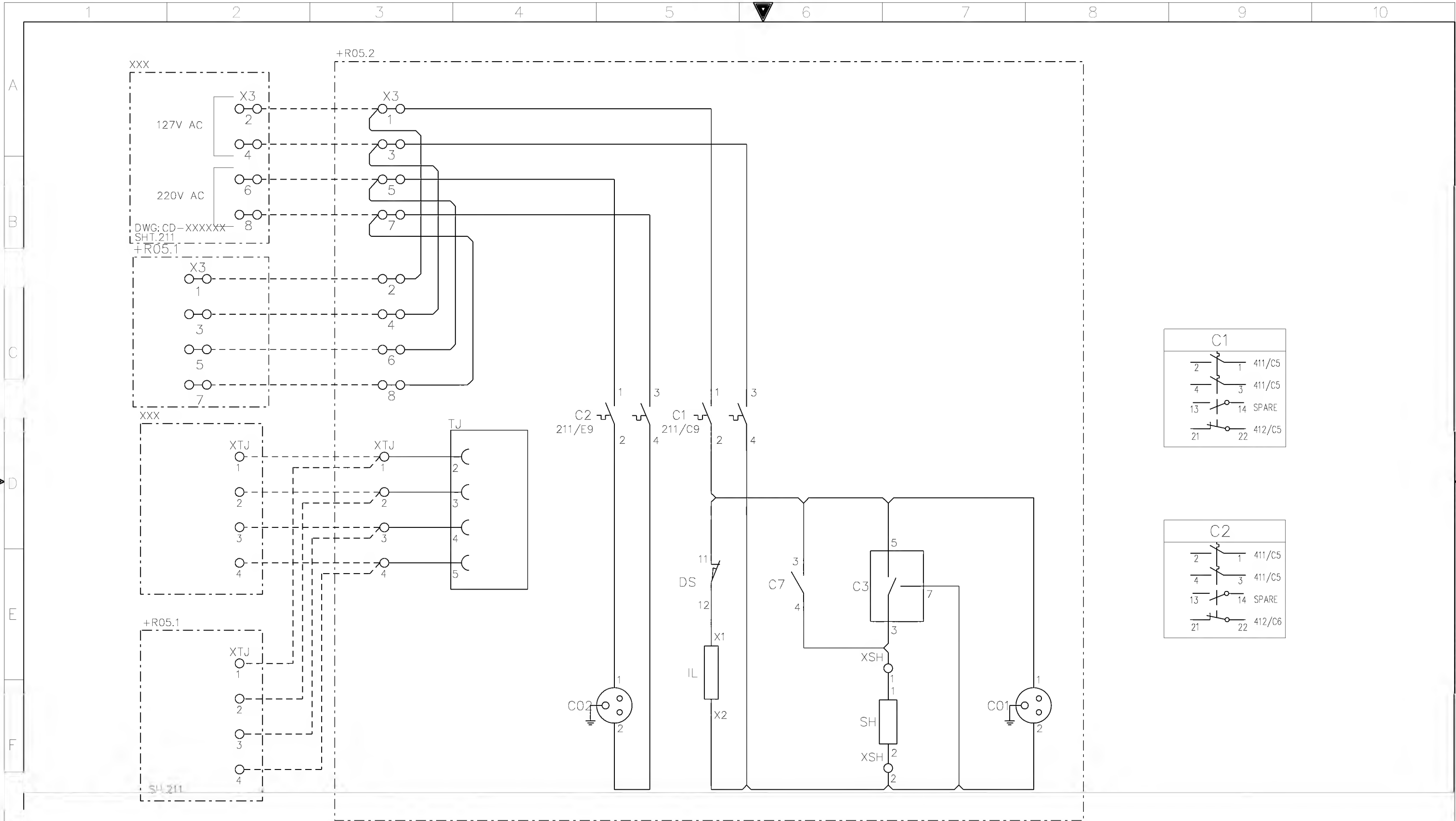
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01

NG/D2-D (2012/01)

DMS VECTOR NGD200





AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT
00	13 04	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION

DRAWN BY RIZ CHECKED BY JKR

DATE STARTED 24.01.2013 DATE COMPLETED _____

OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

AC SUPPLY FOR ILLUMINATION & POWER SOCKET

132/13.8kV GT-1 RELAY PANEL-2 +R05.2

S/S 8709-132/13.8KV IN AL-KHARJ CITY

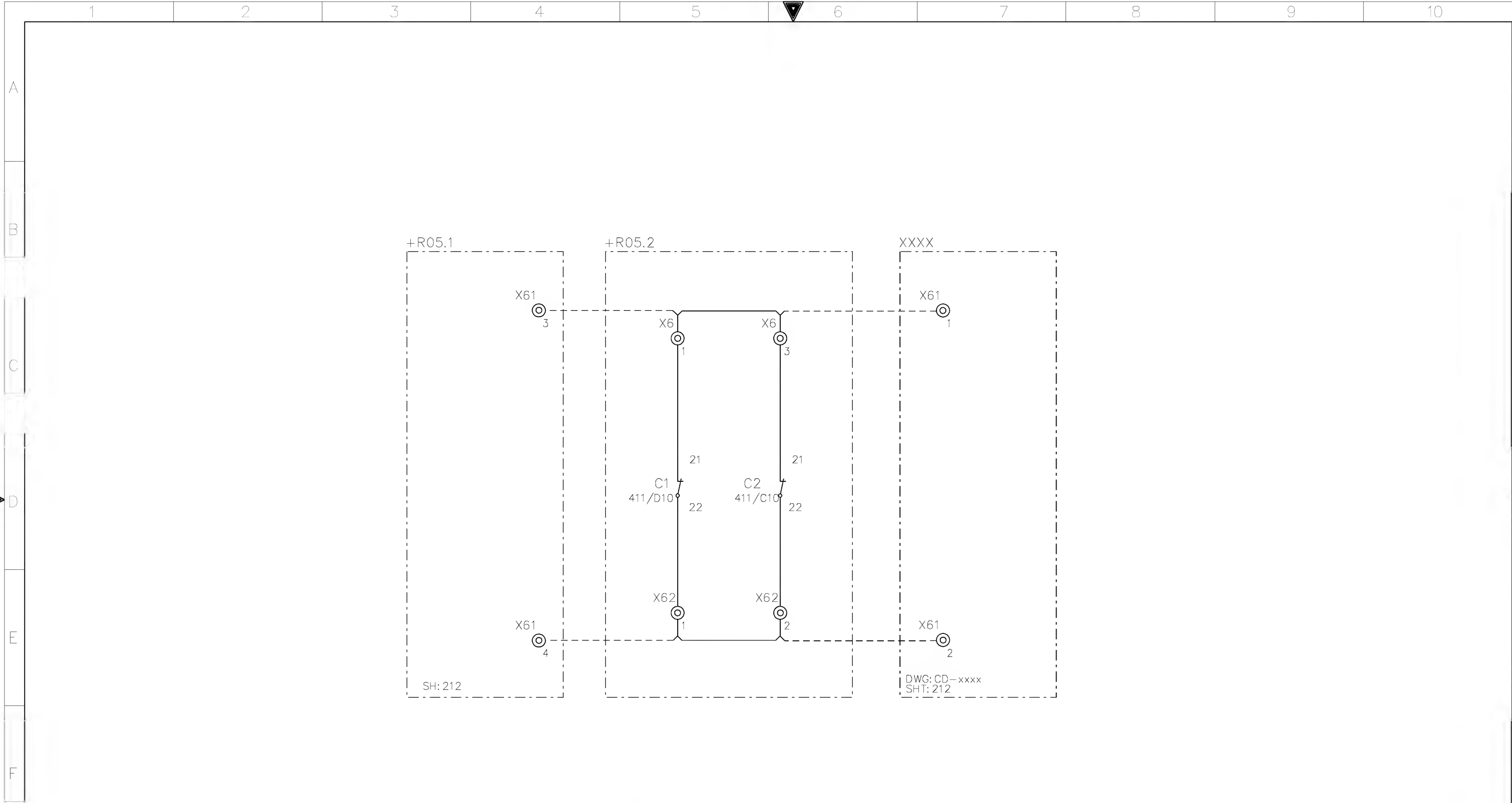
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

نقل الكهرباء

National Grid sa

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322928	SHT CONT.	01
			411 412	



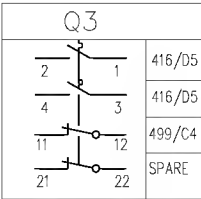
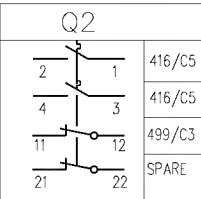
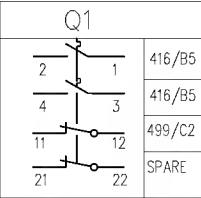
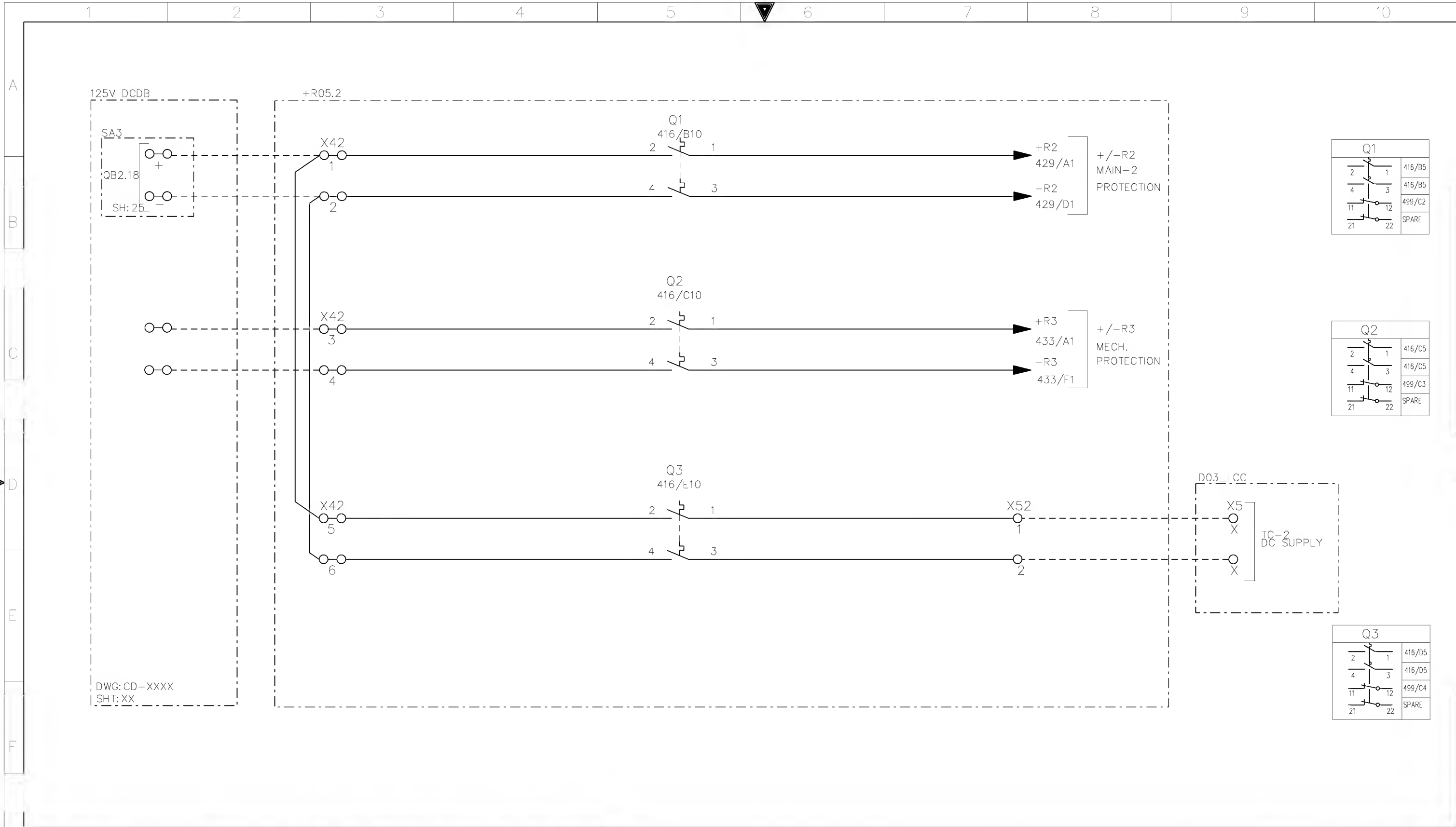
AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY JKR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

CUB.LIGHTING,HEATER&SOKET ALARM CKT.
132/13.8kv GT-1 RELAY PANEL-2 +R05.2
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء
National Grid sa

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322928	SHT 412	CONT. 416
				01



AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT
00	13 04	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION

DRAWN BY RIZ CHECKED BY JKR

DATE STARTED 24.01.2013 DATE COMPLETED _____

OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

DC SUPPLY DISTRIBUTION

132/13.8kV GT-1 RELAY PANEL-2 +R05.2

S/S 8709-132/13.8KV IN AL-KHARJ CITY

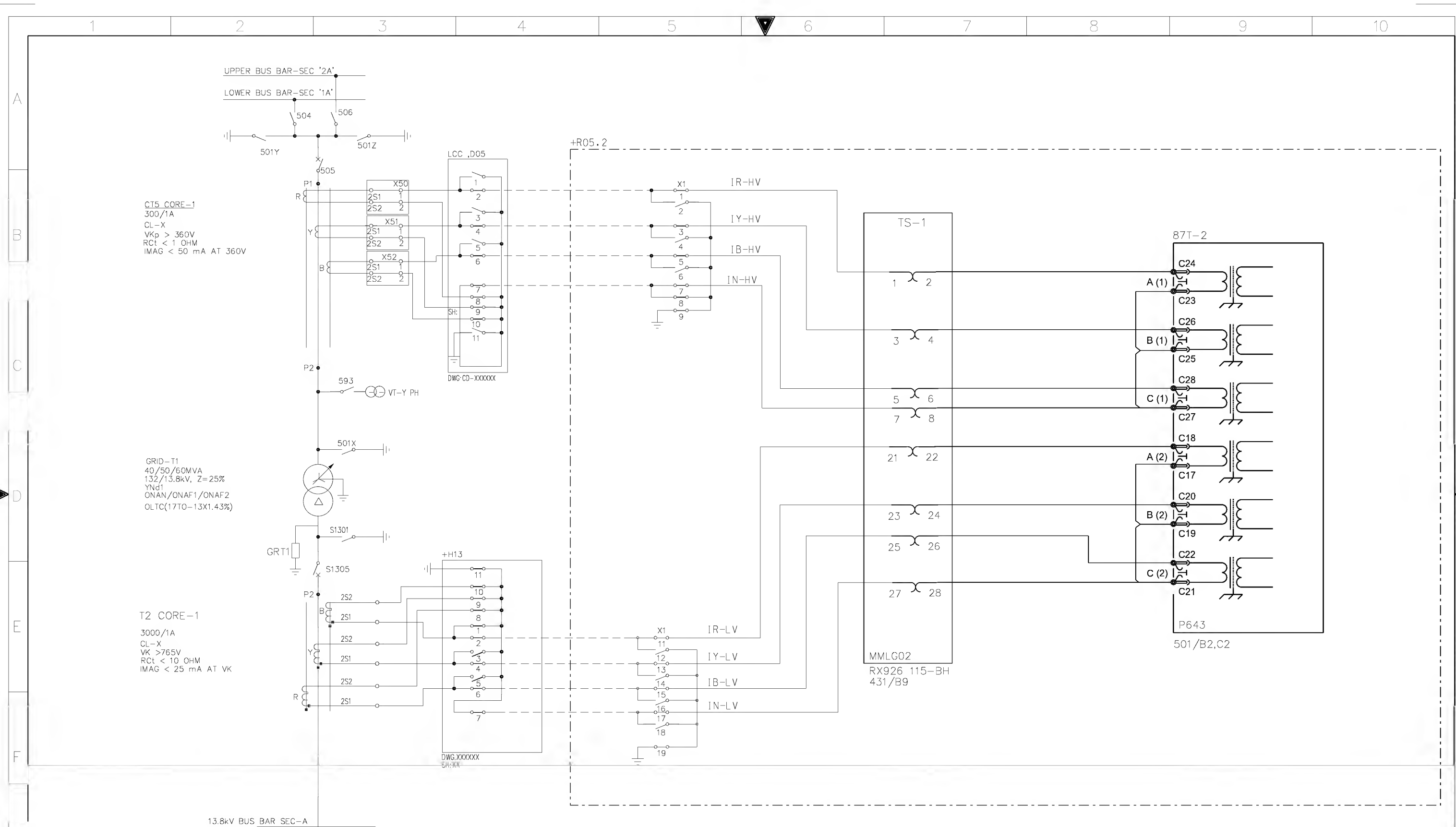
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

نقل الكهرباء

National Grid sa

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
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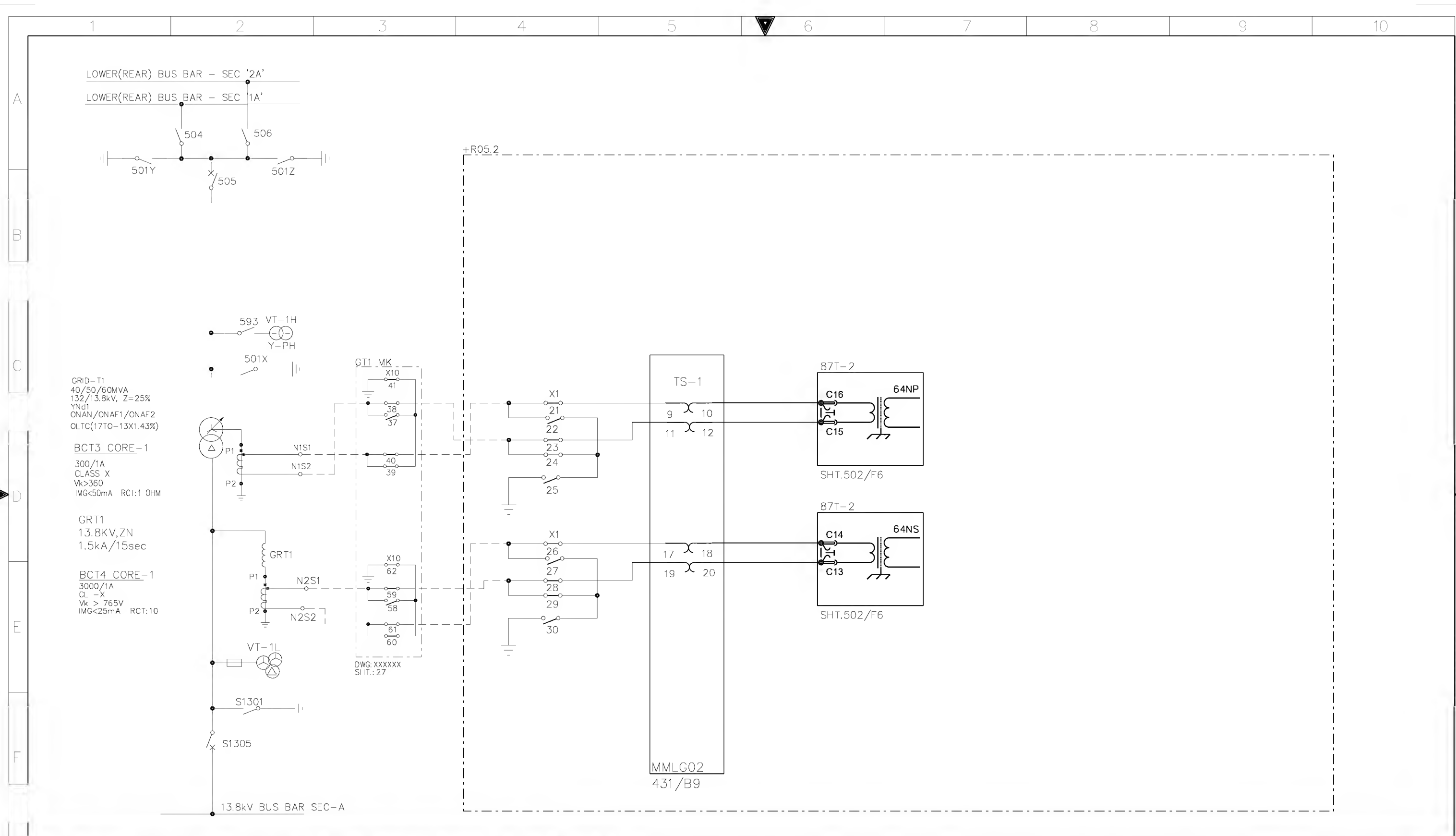



AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

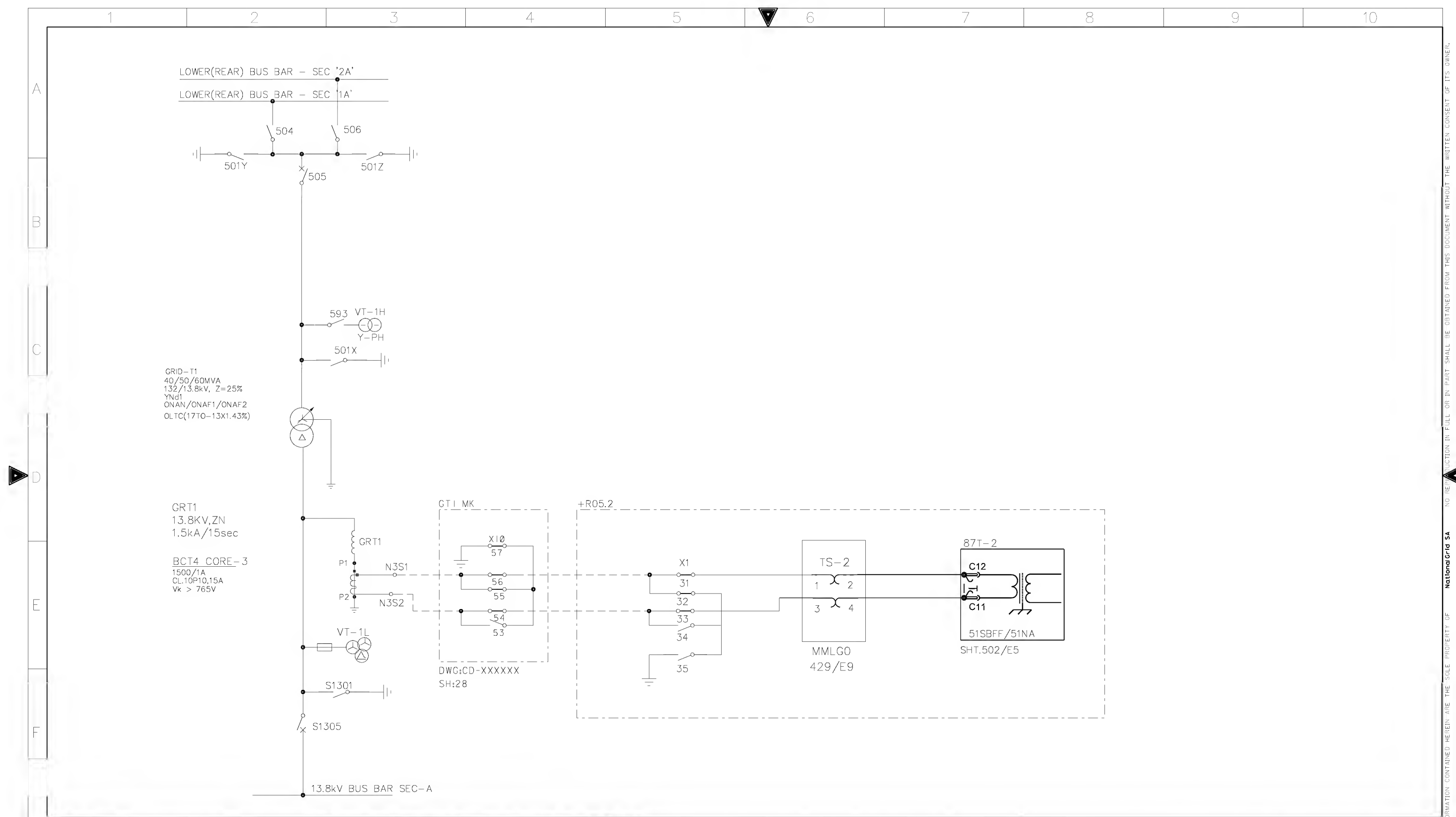
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00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

CT CIRCUITS 87T-2 RELAY
132/13.8kV GT-1 RELAY PANEL-2 +R05.2
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

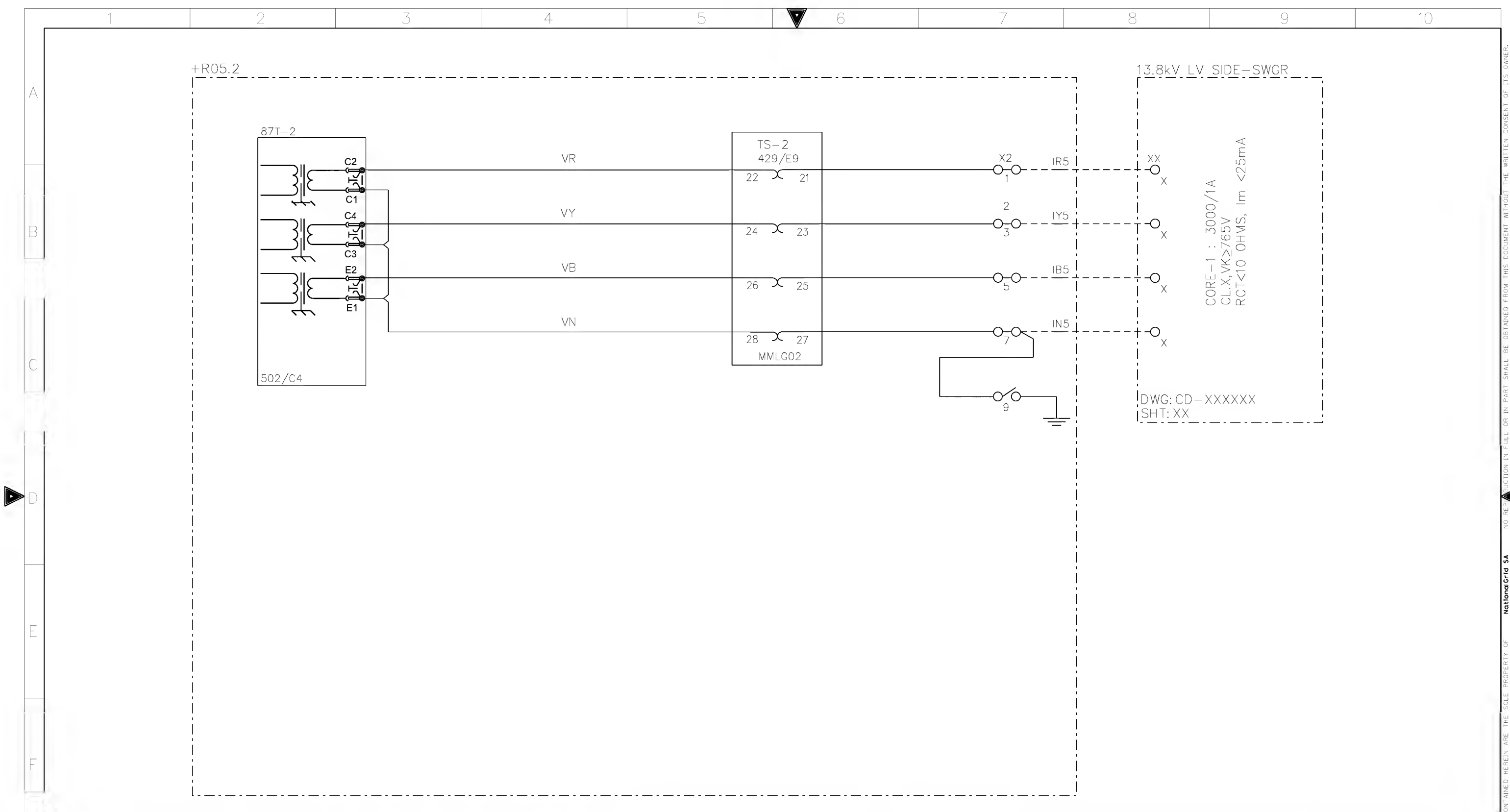
الشركة الوطنية لنقل الكهرباء		National Grid sa	
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.
-	C421	CD-322928	421
			REV. NO.
			01



G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		CT CIRCUITS 87T-2 RELAY		<div> نقل الكهرباء الشركة الوطنية لنقل الكهرباء National Grid sa</div>						
							132/13.8kV GT-1 RELAY PANEL-2 +R05.2								
	01	13 49	FACTORY ASBUILT		DRAWN BY <u>RIZ</u> CHECKED BY <u>JKR</u>		S/S 8709-132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	00	13 04	FOR APPROVAL		DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____		RIYADH SAUDI ARABIA		-	C421	CD-322928		SHT	CONT.	01
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>								422	423	



G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		CT CIRCUITS 87T-2 RELAY		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>										
							132/13.8kV GT-1 RELAY PANEL-2 +R05.2												
	01	13 49	FACTORY ASBUILT	DRAWN BY RIZ		CHECKED BY JKR		S/S 8709-132/13.8KV IN AL-KHARJ CITY											
	00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED _____		RIYADH SAUDI ARABIA											
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.				
									-	C421	CD-322928		SHT 423	CONT. 424	01				
																NG/D2-D (2012/01)			
																DMS VECTOR		NGD200	



AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

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00	13 04	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION

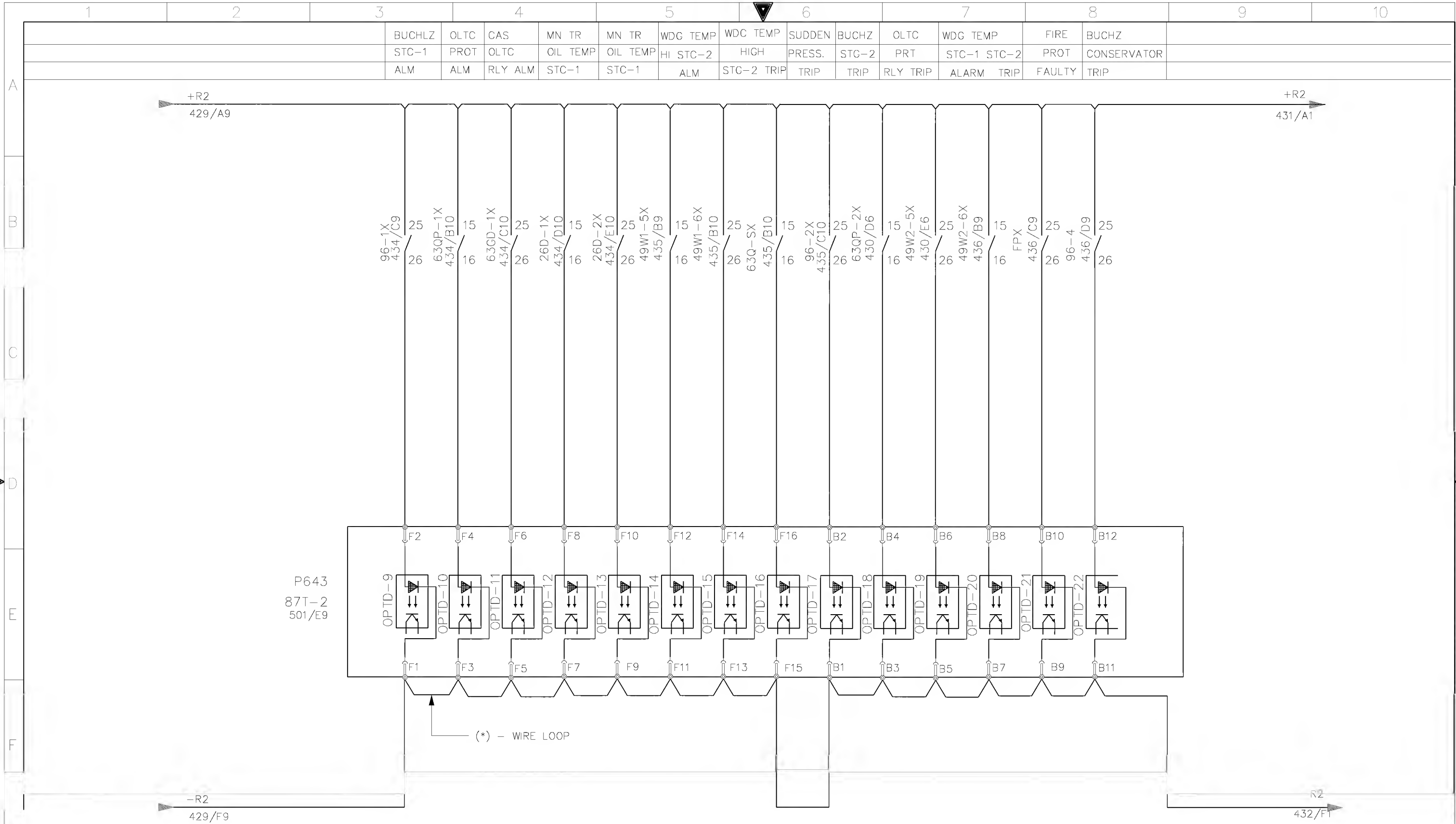
DRAWN BY RIZ CHECKED BY JKR

DATE STARTED 24.01.2013 DATE COMPLETED _____

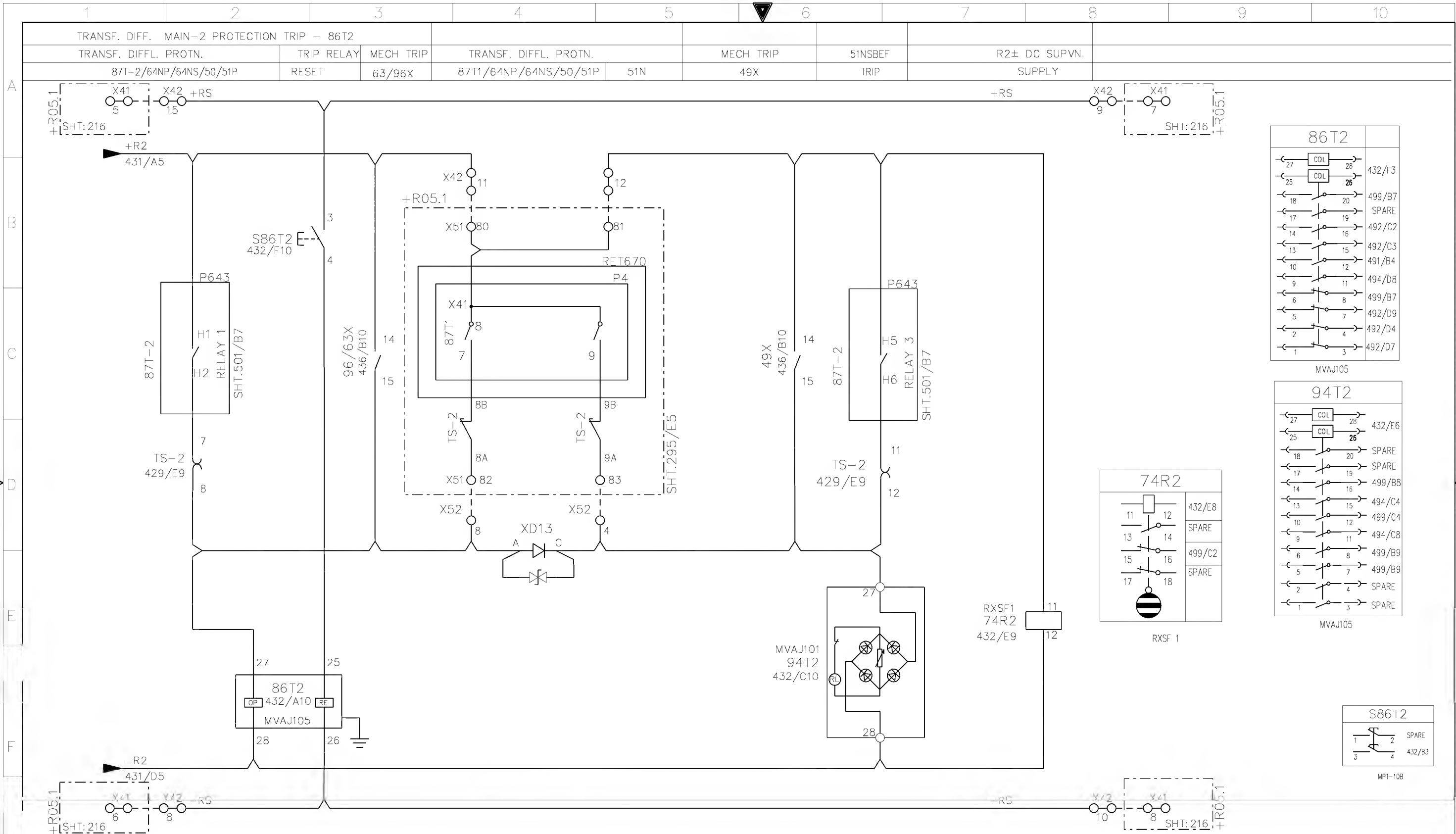
OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

CT & VT CIRCUITS 87T-2 RELAY
132/13.8kV GT-1 RELAY PANEL-2 +R05.2
S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء				نقل الكهرباء	
				National Grid SA	
INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	
-	C421	CD-322928		SHT	CONT.
				424	429
				REV. NO.	
				01	



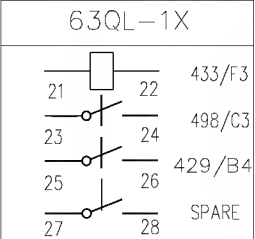
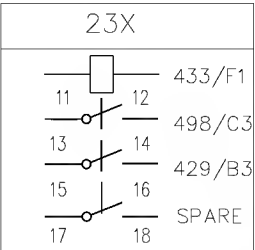
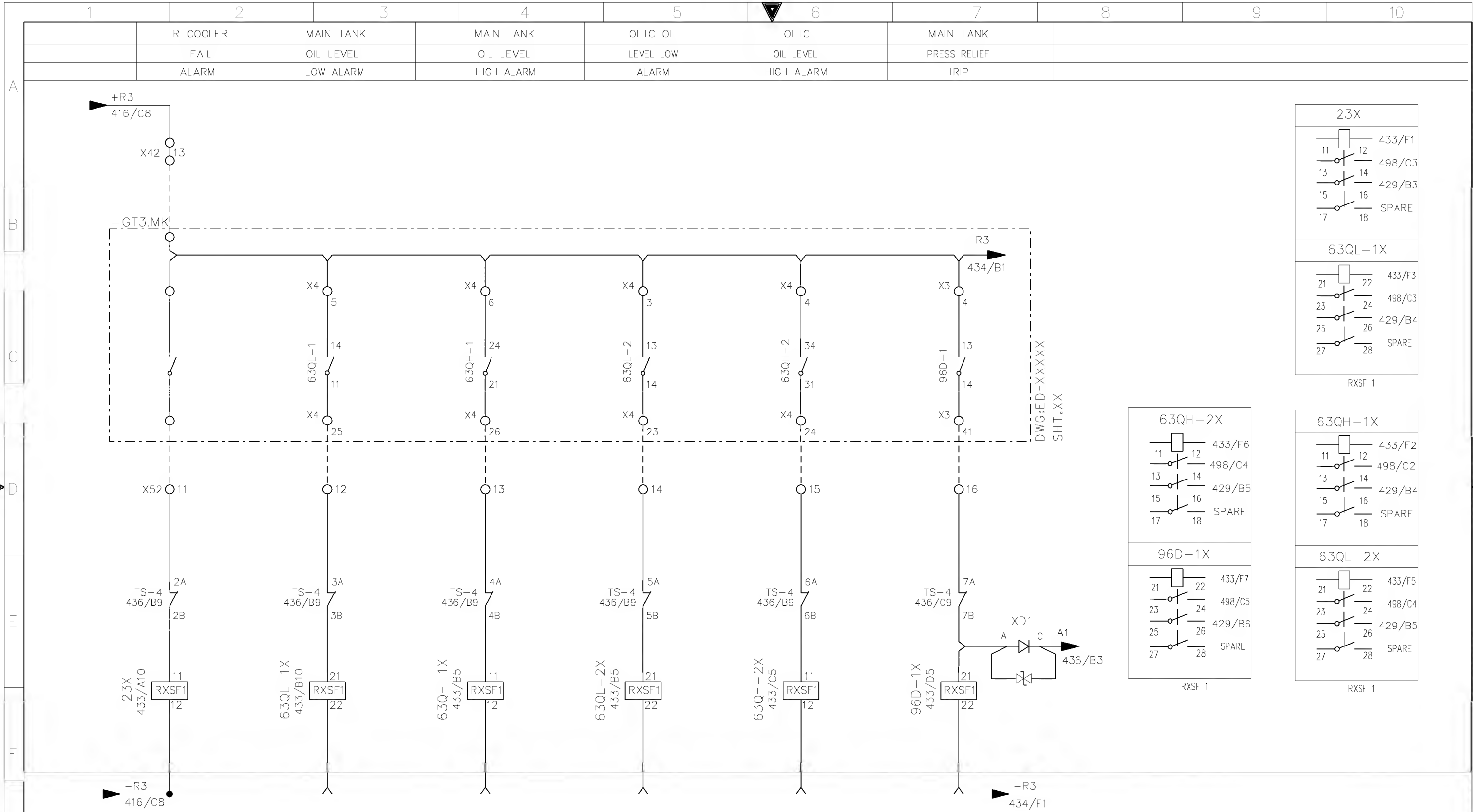
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		87T-2 BINARY INPUTS		الشركة الوطنية لنقل الكهرباء National Grid sa	
			DRAWN BY RIZ CHECKED BY JKR		132/13.8kV GT-1 RELAY PANEL-2 +R05.2		S/S 8709-132/13.8KV IN AL-KHARJ CITY			
01 13 49 FACTORY ASBUILT			DATE STARTED 24.01.2013 DATE COMPLETED _____		RIYADH SAUDI ARABIA		INDEX -		PLANT NO. C421	
00 13 04 FOR APPROVAL			OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC				CD-322928		SHEET NO. 430/432	
REV. NO. DATE DESCRIPTION									REV. NO. 01	



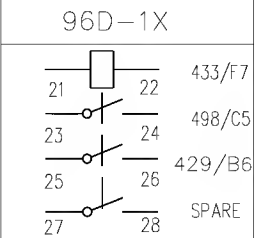
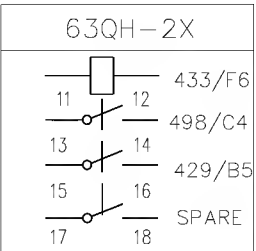
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		MAIN-2 TRANSF DIFFL PROT TRIP RELAY CIRCUIT			<div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>									
			DRAWN BY RIZ		CHECKED BY JKR		132/13.8kV GT-1 RELAY PANEL-2 +R05.2												
01 13 49			FACTORY ASBUILT			DATE STARTED 24.01.2013			DATE COMPLETED _____			S/S 8709-132/13.8KV IN AL-KHARJ CITY							
00 13 04			FOR APPROVAL			OPRG. DEPT. CTPD			ENG. DEPT. AUT-PSAC			RIYADH SAUDI ARABIA							
REV. NO.			DATE			DESCRIPTION			INDEX			PLANT NO.		DRAWING NUMBER		SHEET NO.		REV. NO.	
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NG/D2-D (2012/01)

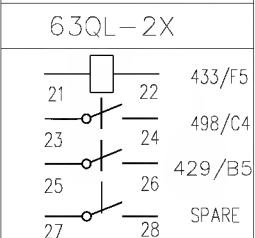
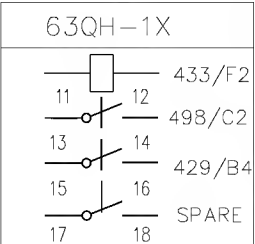
DMS VECTOR NGD200



RXSf 1



RXSf 1



RXSf 1

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY JKR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

TRANS .MECH.PROTN.CONTACT MULTI.CKT

132/13.8kv GT-1 RELAY PANEL-2 +R05.2

S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



National Grid sa

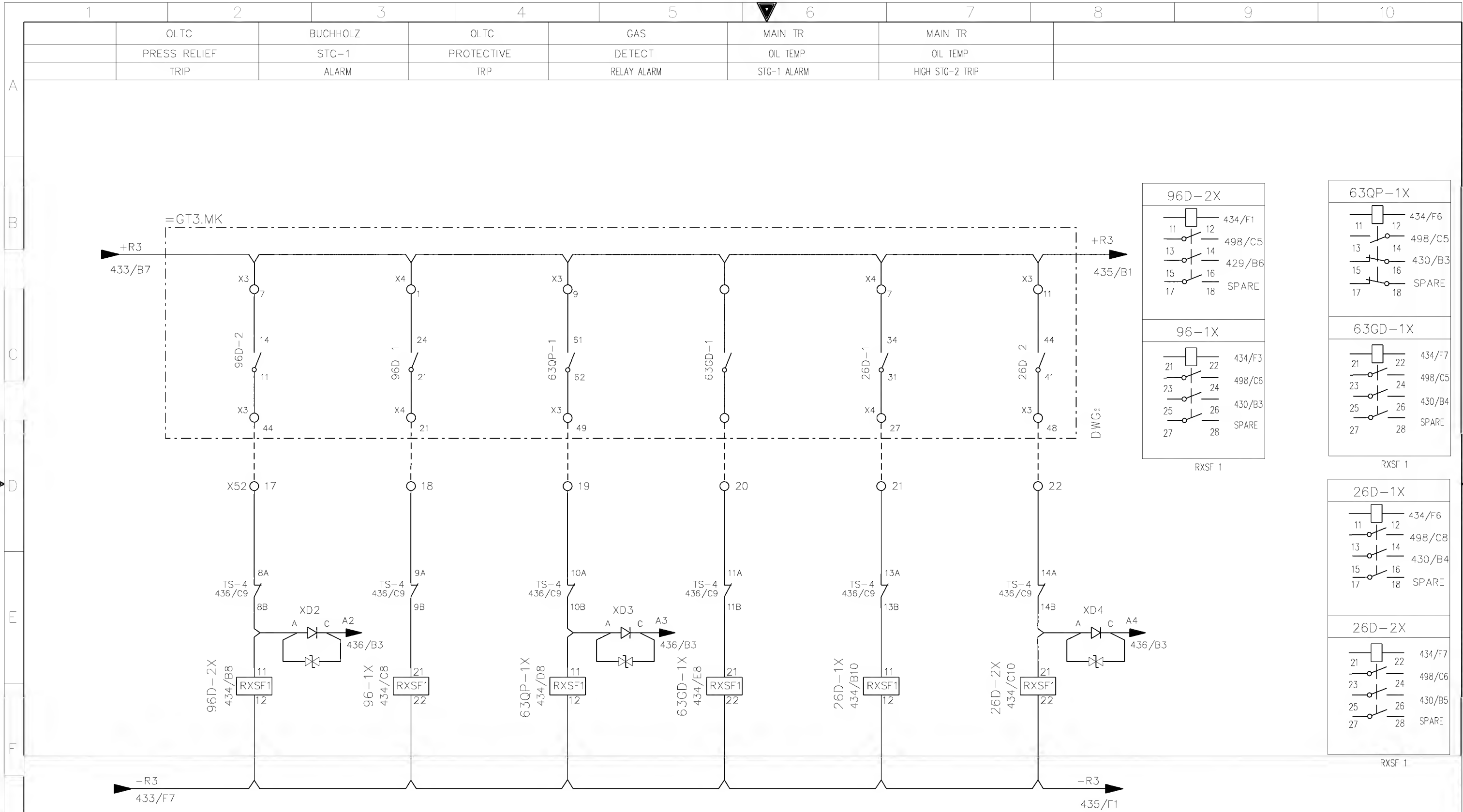
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322928	SHT 433	CONT. 434
				01

NG/D2-D (2012/01)

DMS

VECTOR

NGD200



AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY JKR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

TRANS .MECH.PROTN.CONTACT MULTI.CKT

132/13.8kV GT-1 RELAY PANEL-2 +R05.2

S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

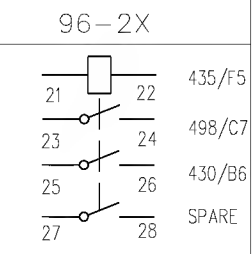
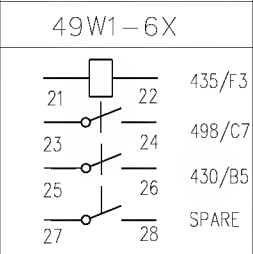
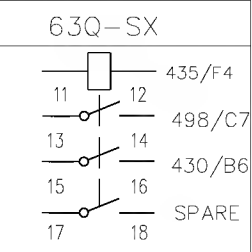
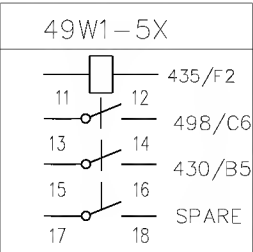
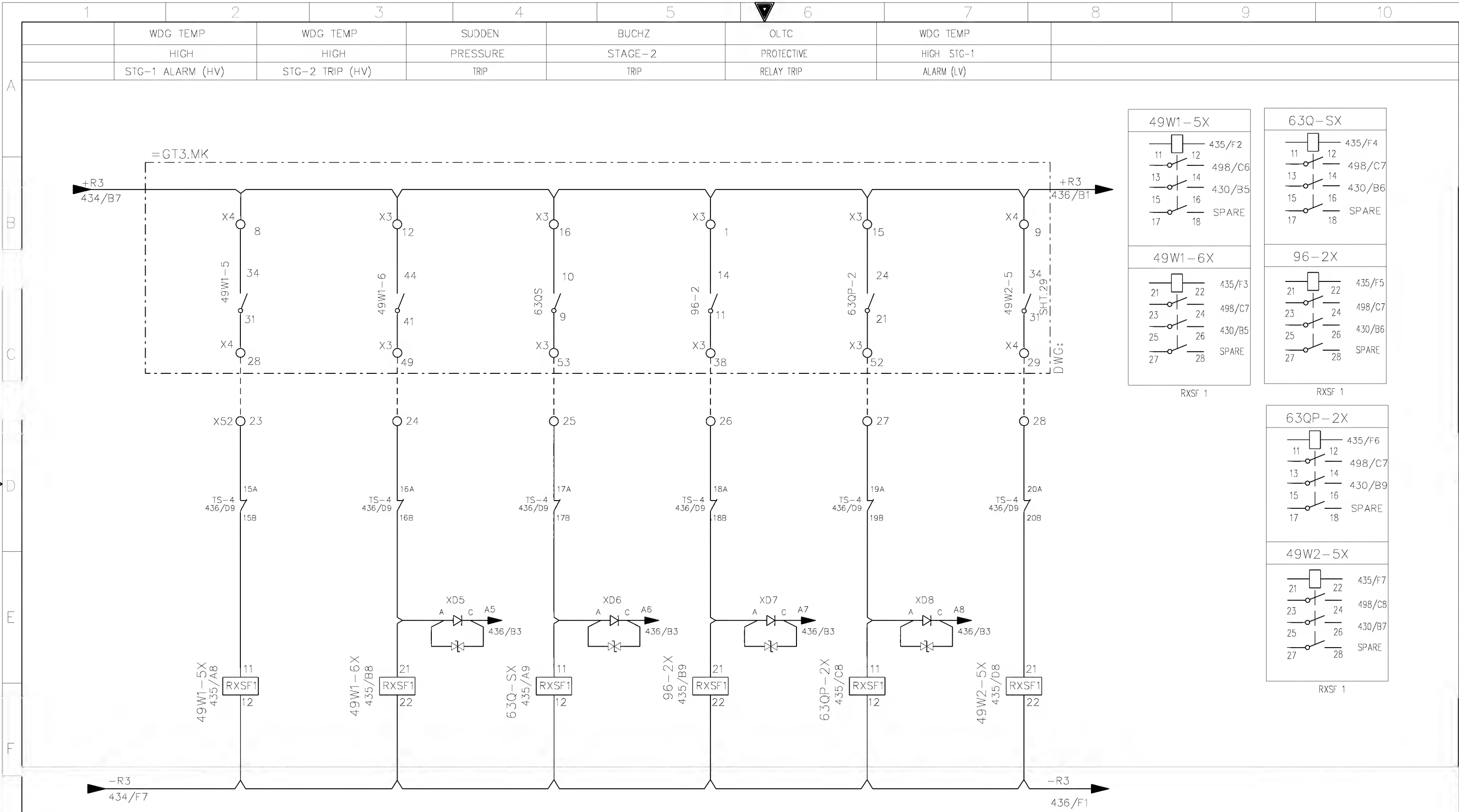


INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322928	434/435	01

DMS

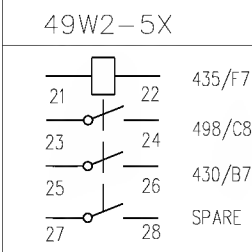
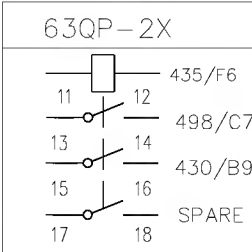
VECTOR

NGD200



RXSf 1

RXSf 1



RXSf 1

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY JKR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

TRANS.MECH.PROTN.CONTACT.MULTI.CKT

132/13.8kV GT-1 RELAY PANEL-2 +R05.2

S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

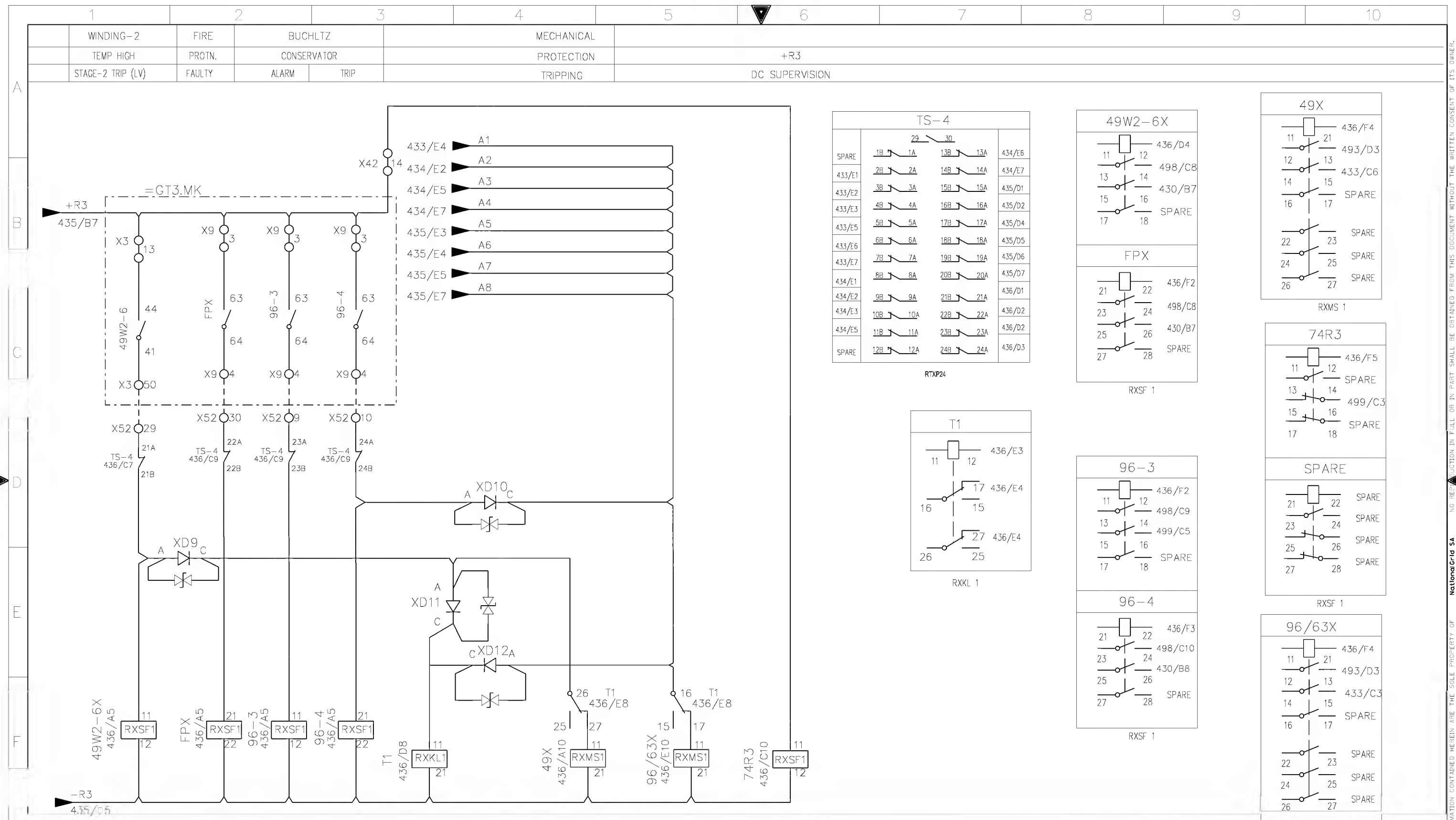


INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322928	SHT 435	CONT. 436
				01

DMS

VECTOR

NGD200



TS-4			
SPARE	1B	1A	13B
433/E1	2B	2A	14B
433/E2	3B	3A	15B
433/E3	4B	4A	16B
433/E5	5B	5A	17B
433/E6	6B	6A	18B
433/E7	7B	7A	19B
434/E1	8B	8A	20B
434/E2	9B	9A	21B
434/E3	10B	10A	22B
434/E5	11B	11A	23B
SPARE	12B	12A	24B

49W2-6X			
11	12	436/D4	
13	14	498/C8	
15	16	430/B7	
17	18	SPARE	

49X			
11	21	436/F4	
12	13	493/D3	
14	15	433/C6	
16	17	SPARE	
22	23	SPARE	
24	25	SPARE	
26	27	SPARE	

FPX			
21	22	436/F2	
23	24	498/C8	
25	26	430/B7	
27	28	SPARE	

74R3			
11	12	436/F5	
13	14	SPARE	
15	16	499/C3	
17	18	SPARE	

SPARE			
21	22	SPARE	
23	24	SPARE	
25	26	SPARE	
27	28	SPARE	

96-3			
11	12	436/F2	
13	14	498/C9	
15	16	499/C5	
17	18	SPARE	

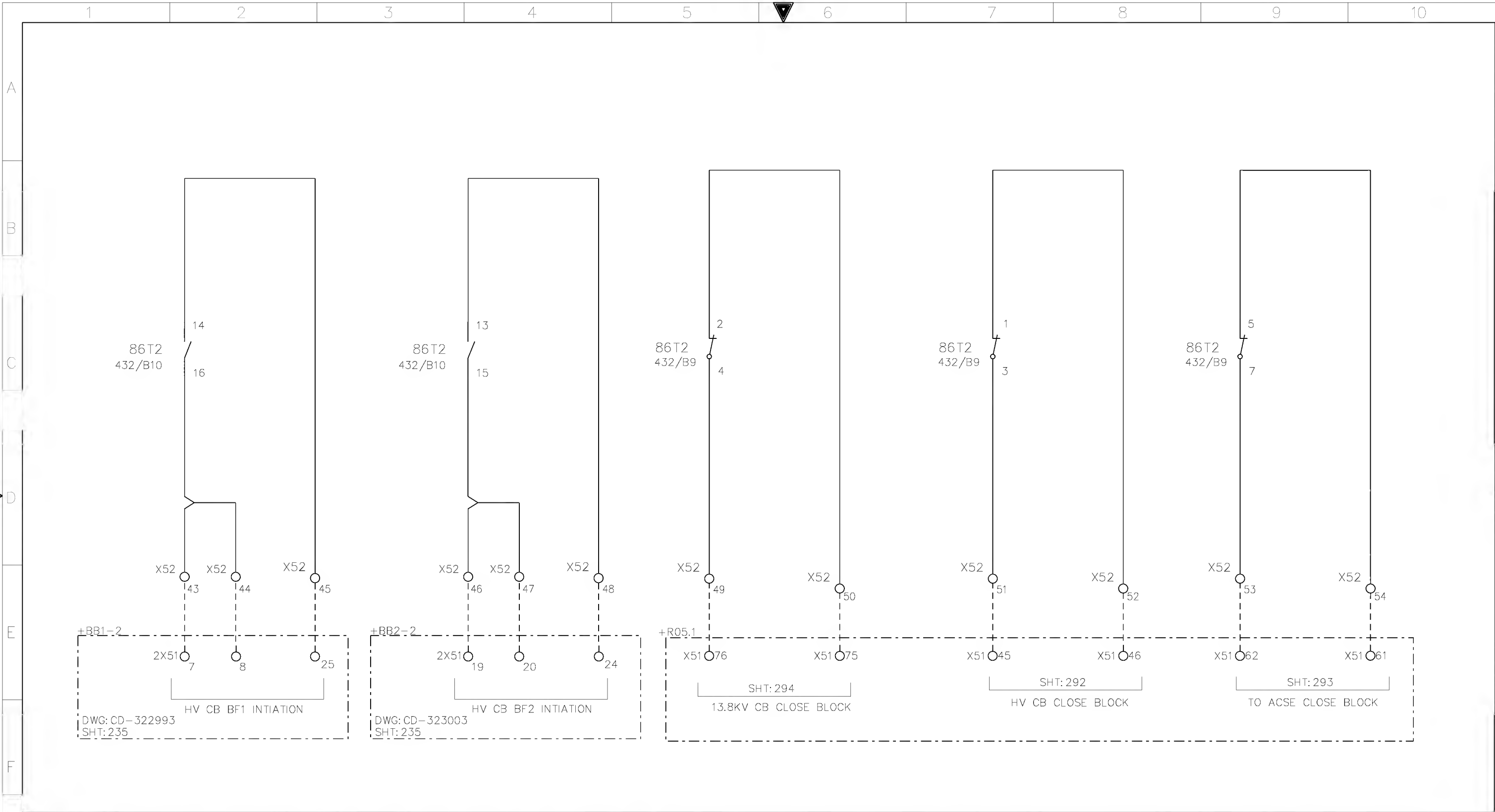
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23	24	498/C10	
25	26	430/B8	
27	28	SPARE	

96/63X			
11	21	436/F4	
12	13	493/D3	
14	15	433/C3	
16	17	SPARE	
22	23	SPARE	
24	25	SPARE	
26	27	SPARE	

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		TRANS MECH.PROTN.CONTACT.MULTI.CKT		
01 13 49			DRAWN BY RIZ		CHECKED BY JKR		132/13.8kV GT-1 RELAY PANEL-2 +R05.2		
00 13 04			DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY		
REV. NO. DATE DESCRIPTION			OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		

الشركة الوطنية لنقل الكهرباء
National Grid sa

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322928	436/491	01



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		BF INI & CLOSE BLOCK CIRCUIT		<div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>									
			DRAWN BY RIZ		CHECKED BY JKR		132/13.8kV GT-1 RELAY PANEL-2 +R05.2											
01 13 49			FACTORY ASBUILT		DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.	
00 13 04			FOR APPROVAL		OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-322928		SHT 492		CONT. 493	01
REV. NO.			DATE		DESCRIPTION													

A

B

C

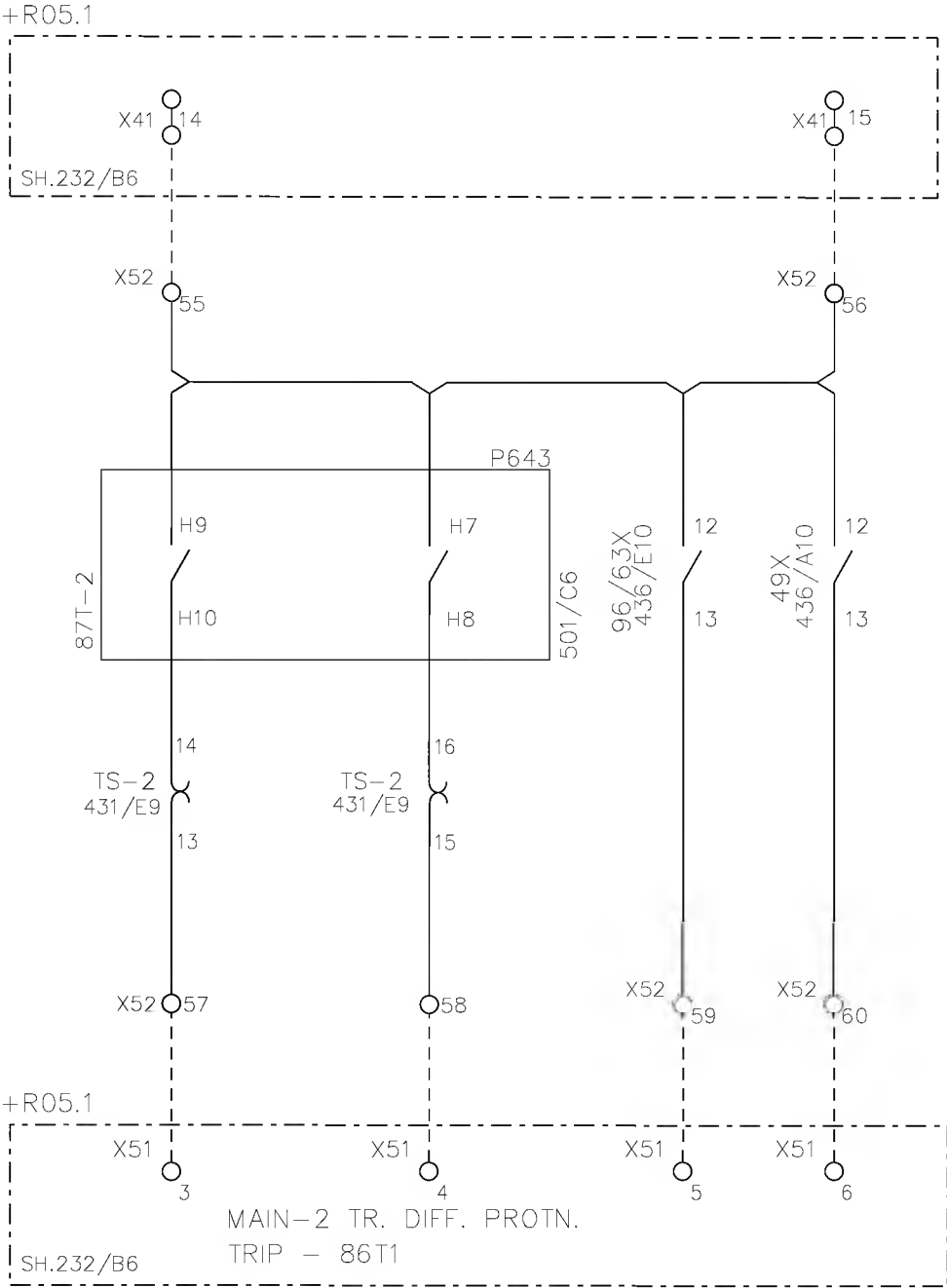
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E

F

G

MAIN-2 TR. DIFF. PROTN.
TRIP - 86T1 & 94T1

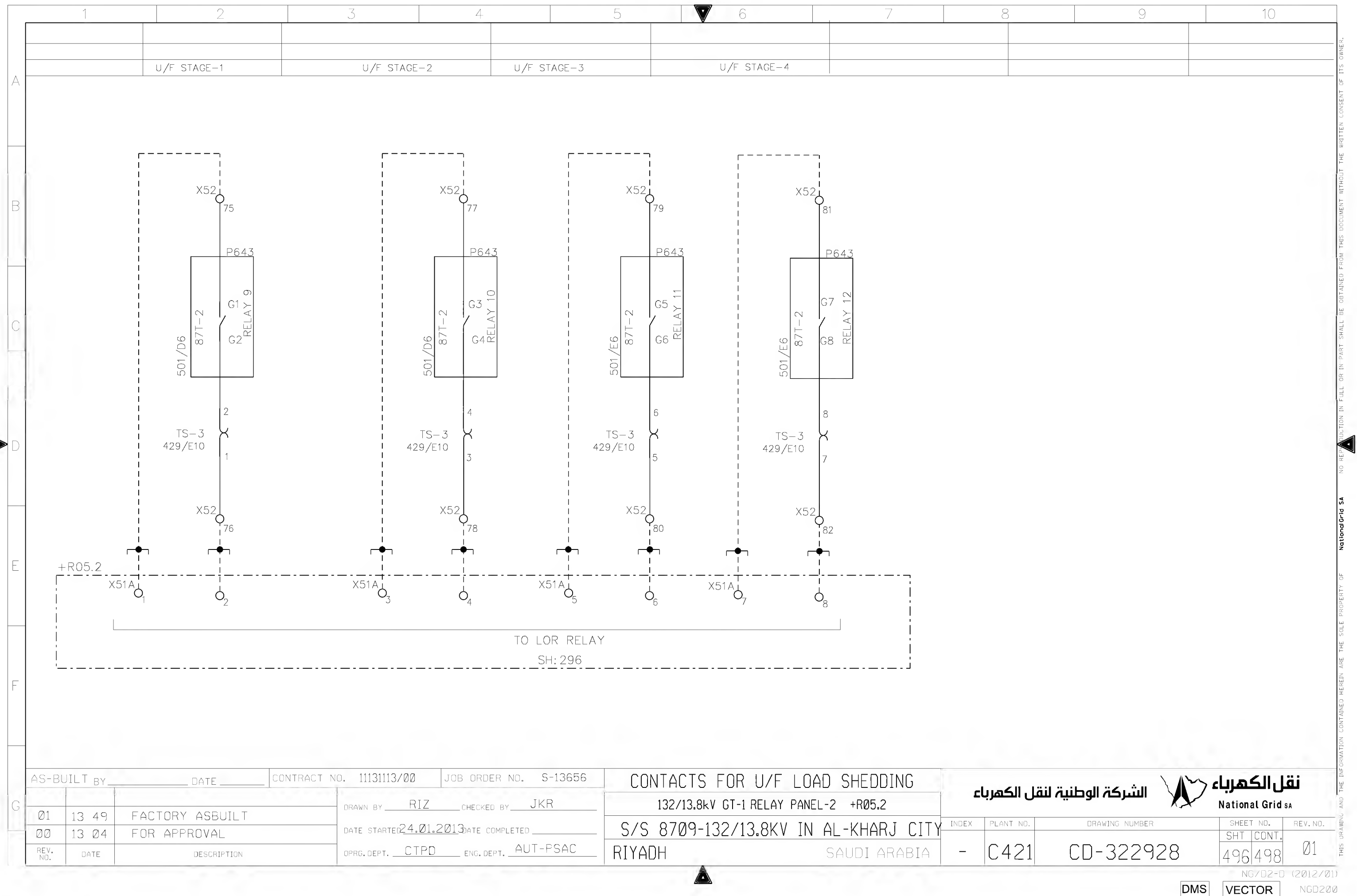


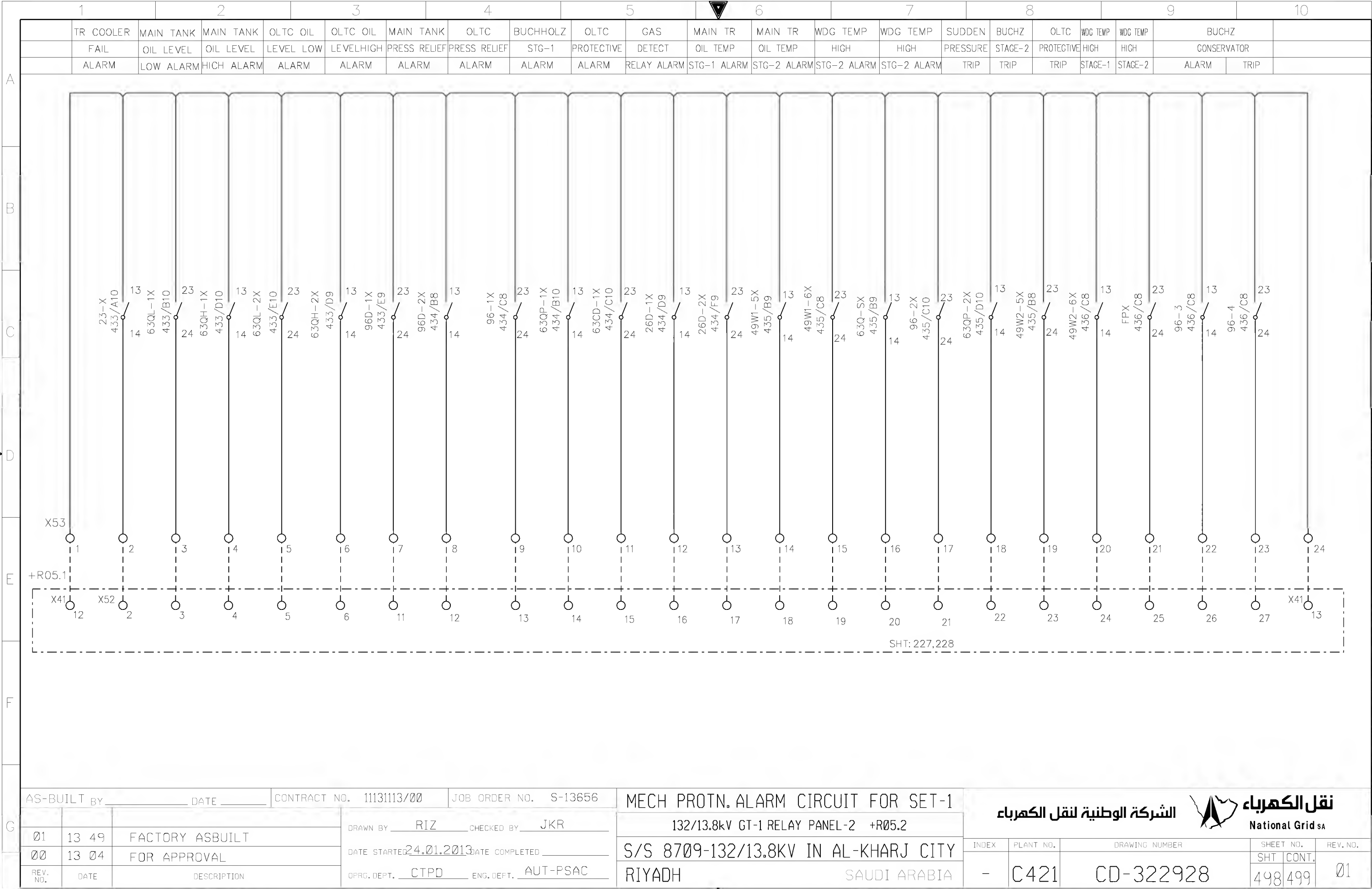
+R05.2

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		TRANSFORMER MECHANICAL PROTN.		<div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>						
01	13 49	FACTORY ASBUILT	DRAWN BY RIZ		CHECKED BY JKR		132/13.8kV GT-1 RELAY PANEL-2 +R05.2								
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-322928		SHT	CONT.	01
													493	494	

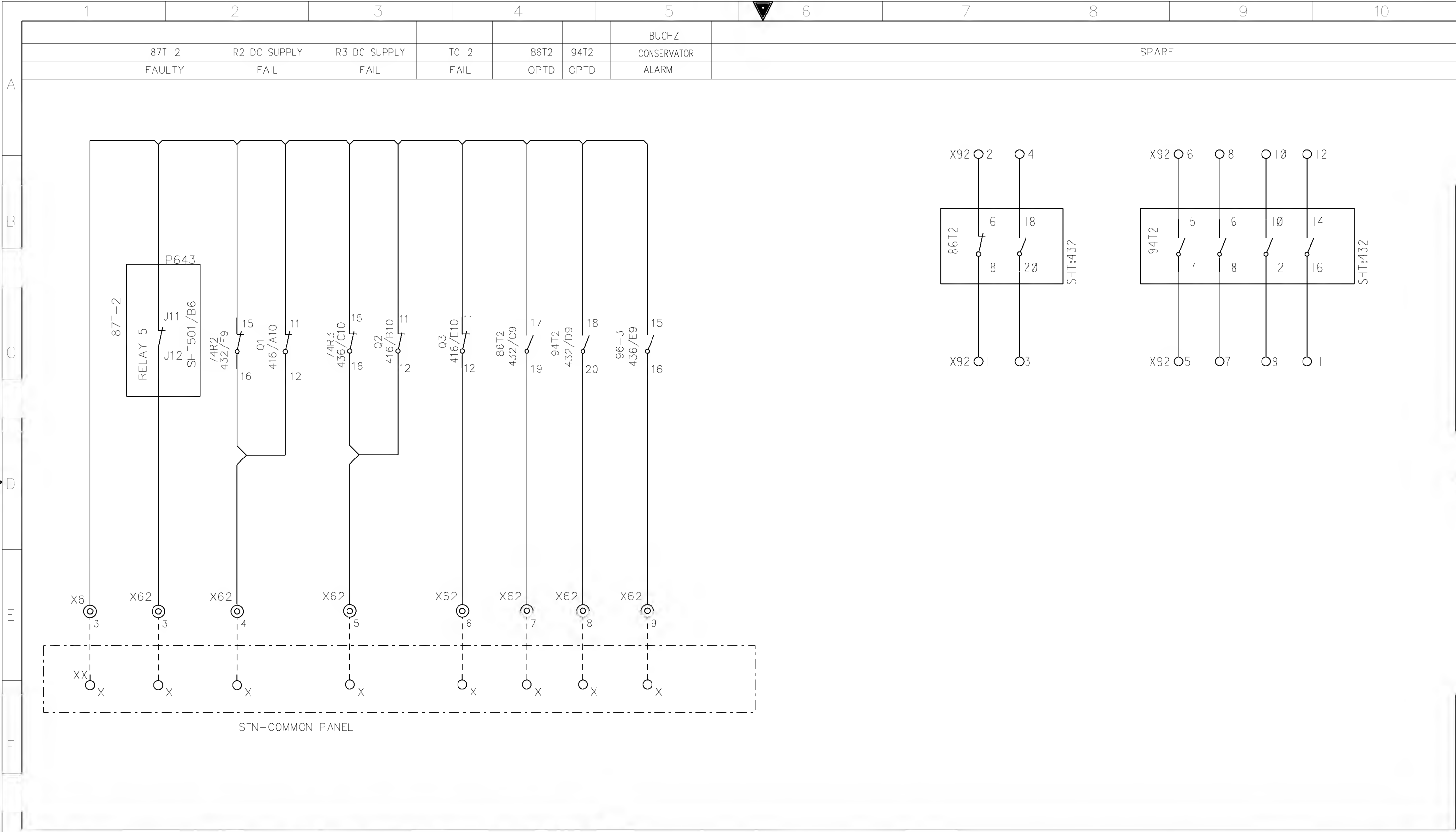
NG/D2-D (2012/01)

DMS VECTOR NGD200

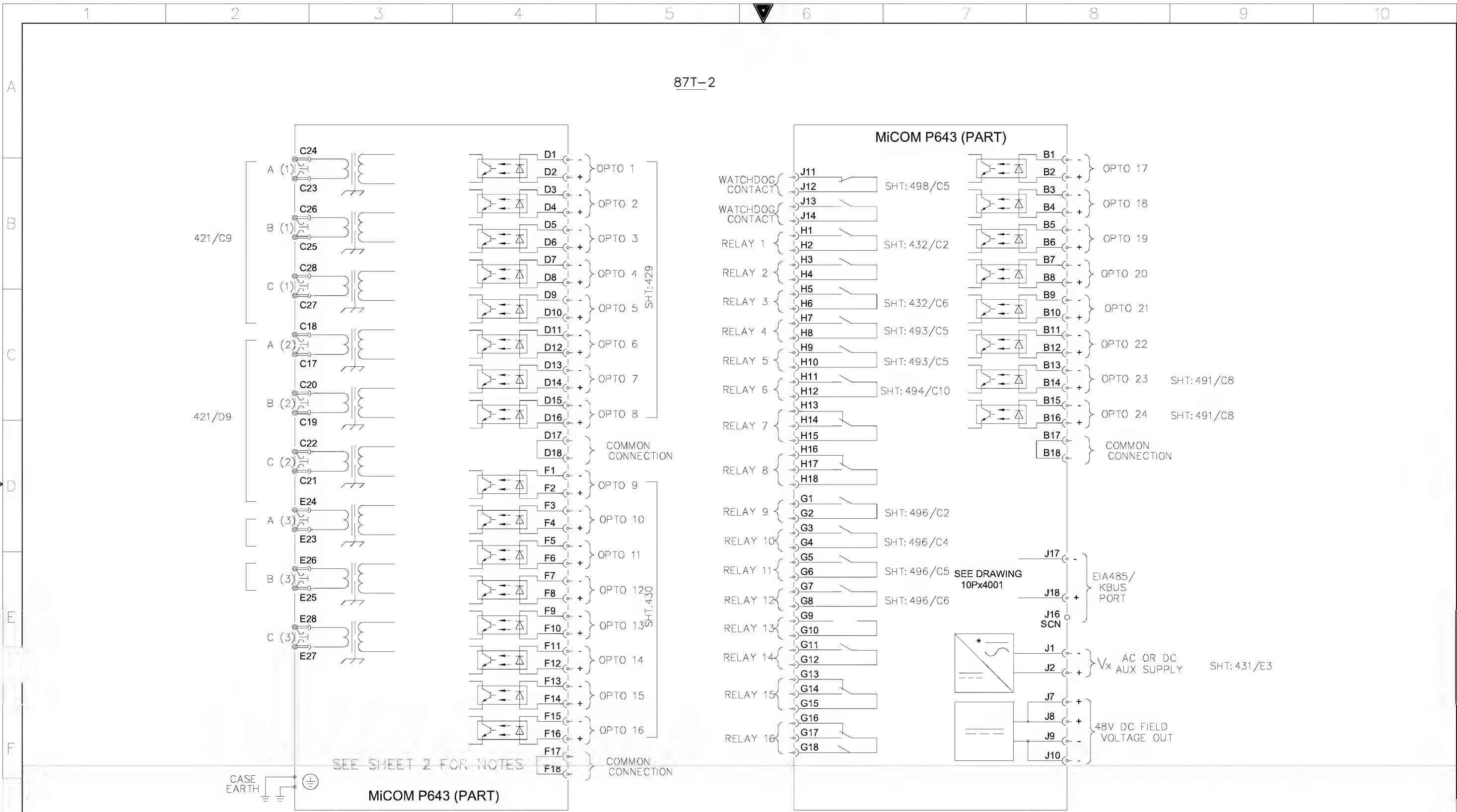




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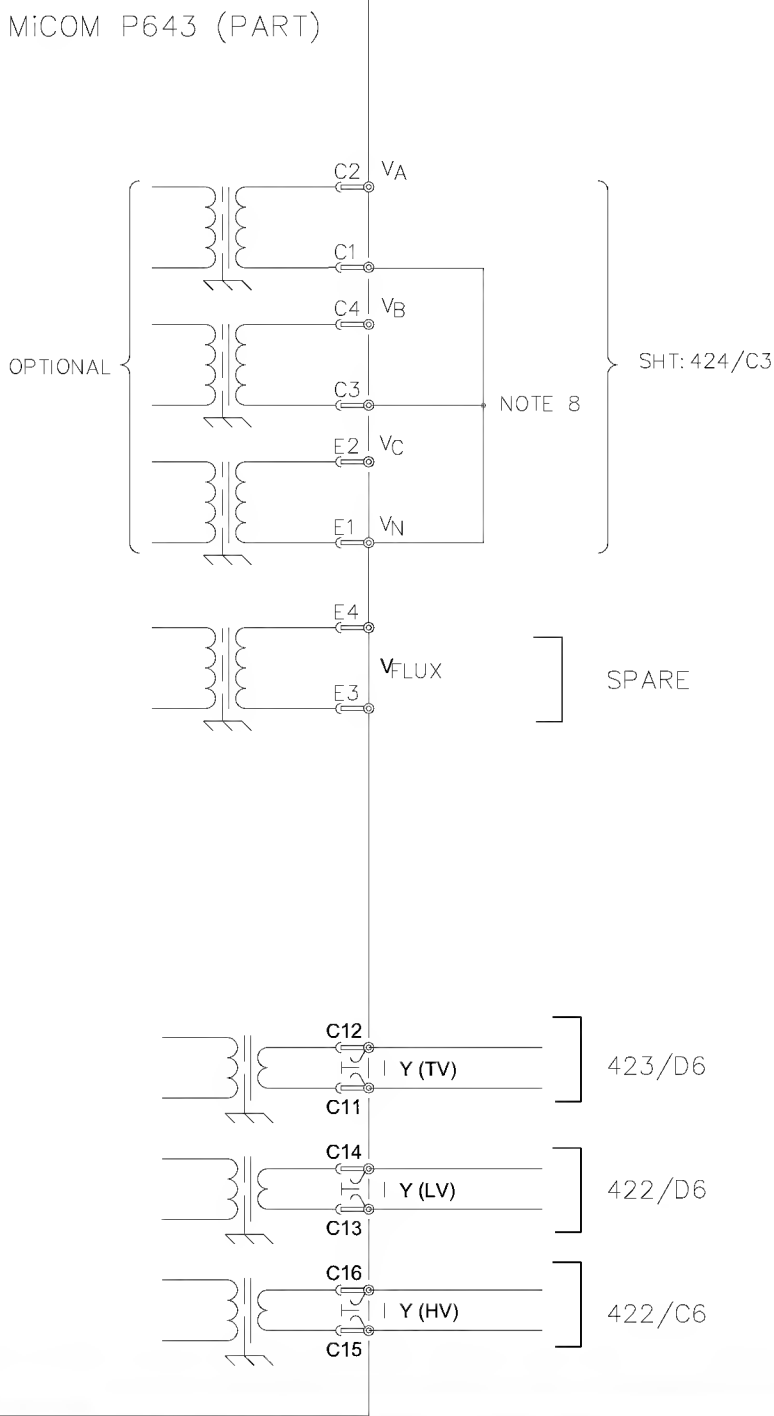
G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		STN COMMON ALARM CIRCUIT		الشركة الوطنية لنقل الكهرباء National Grid sa						
				DRAWN BY RIZ		CHECKED BY JKR		132/13.8kv GT-1 RELAY PANEL-2 +R05.2							
	01	13 49	FACTORY ASBUILT		DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY						
	00	13 04	FOR APPROVAL		OPRG. DEPT. CTPC		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA						
	REV. NO.	DATE	DESCRIPTION						INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
									-	C421	CD-322928		SHT 499 CONT. 501		01






AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		BLOCK REFERENCE		الشركة الوطنية لنقل الكهرباء National Grid sa			
DRAWN BY RIZ CHECKED BY JKR			DATE STARTED 24.01.2013		DATE COMPLETED _____		132/13.8KV GT-1 RELAY PANEL-2 +R05.2		INDEX		PLANT NO.	
01 13 49 FACTORY ASBUILT			OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		S/S 8709-132/13.8KV IN AL-KHARJ CITY		DRAWING NUMBER		SHEET NO.	
00 13 04 FOR APPROVAL			SAUDI ARABIA		RIYADH		CD-322928		501 502		REV. NO.	
REV. NO. DATE DESCRIPTION			01 13 04		01		CD-322928		501 502		01	


P643 BIAS INPUTS	BIAS 1	BIAS 2	BIAS 3
HV + LV	HV		LV
HV + LV (x2)	HV	LV	LV
HV (x2) + LV	HV	HV	LV
HV + TV + LV	HV	TV	LV

TABLE 1 (NOTES 5 & 6)



NOTE

1. (a)  C.T. SHORTING LINKS MAKE BEFORE (b) DISCONNECT.
(b)  TERMINAL.
(c)  PIN TERMINAL (P.C.B. TYPE)
2. SEE TABLE 1 FOR BIAS ASSIGNMENT TO ACTUAL WINDINGS. BIAS INPUT 1 IS ALWAYS AN HV WINDING CONNECTION.
3. WYE GROUND INPUTS APPLICABLE FOR GROUNDED (EARTHED) WINDINGS.
4. THE VT MAY BE CONNECTED ACROSS ANY PHASE-PHASE PAIR.
(USED BY V/Hz W2 PROTECTION ONLY).
5. (x2) DENOTES WINDINGS ENERGISED VIA TWO CT SETS. THE RELAY SOFTWARE SUMMATES A VIRTUAL WINDING CURRENT FROM THE TWO BIAS INPUTS.
6. TV INPUTS ARE NOT MANDATORY IF THE TERTIARY HAS NO LOAD.
7. FOR COMMS OPTIONS SEE DRAWING 10P4001.
8. THE VT STAR POINT MUST BE MADE EXTERNALLY AS SHOWN.
9. THE MONITORED THREE PHASE VOLTAGE MAY BE CONNECTED HV, TV OR LV SIDE.
(USED BY V/Hz W1 PROTECTION AND OTHER VOLTAGE PROTECTION).
10. DERIVED NEUTRAL POINT. SEE P64X/EN T/- - FOR DETAILS OF RESISTORS.

AS-BUILT BY _____ DATE _____			CONTRACT NO. I1131113/00		JOB ORDER NO. S-13656		BLOCK REFERENCE							 نقل الكهرباء الشركة الوطنية لنقل الكهرباء National Grid sa	
			DRAWN BY RIZ CHECKED BY JKR		132/13.8kV GT-1 RELAY PANEL-2 +R05.2										
01 13 49 FACTORY ASBUILT			DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY										
00 13 04 FOR APPROVAL			OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA										
REV. NO.	DATE	DESCRIPTION					INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.				
							-	C421	CD-322928	SHT 502 CONT. 506	01				

	1	2	3	4	5	6	7	8	9	10
A										
B										
C										
D										
E										
F										
G										

REFERENCE	X3 AC CKT.
411/A3	1
411/A7	2
411/A3	3
411/A7	4
411/B3	5
411/B7	6
411/B3	7
411/B7	8
SPARE	9
SPARE	10

REFERENCE	XTJ T.JACK
411/C3	1
411/D3	2
411/D3	3
411/D3	4
SPARE	5

REFERENCE	XSH SPACE HEATER
411/E6	1
411/F6	2
SPARE	3

REFERENCE	X6 ALM. CKT.
412/B5	1
412/B5	2
499/E1	3

REFERENCE	X2 VT CKT.
424/B4	1
424/B4	2
424/C4	3
424/C4	4
SPARE	5

REFERENCE	X1 CT CKTS.
421/B5	1
421/B5	2
421/B5	3
421/B5	4
421/B5	5
421/B5	6
421/C5	7
421/C5	8
421/C5	9
SPARE	10
421/E5	11
421/E5	12
421/E5	13
421/E5	14
421/E5	15
421/F5	16
421/F5	17
421/F5	18
421/F5	19
SPARE	20
422/D4	21
422/D4	22
422/D4	23
422/D4	24
422/D4	25
422/E4	26
422/E4	27
422/E4	28
422/E4	29
SPARE	30
423/E5	31
423/D5	32
423/D5	33
423/D5	34
423/D5	35
SPARE	36
SPARE	37
SPARE	38
SPARE	39
SPARE	40

REFERENCE	X52 CON & PROTN CKTS.
416/B3	1
416/B3	2
429/D3	3
432/D4	4
432/D5	5
SPARE	6
SPARE	7
SPARE	8
436/D3	9
436/D3	10
433/D1	11
433/D2	12
433/D4	13
433/D5	14
433/D6	15
433/D7	16
434/D1	17
434/D2	18
434/D4	19
434/D5	20
434/D6	21
434/D7	22
435/D1	23
435/D2	24
435/D4	25
435/D5	26
435/D6	27
435/D7	28
436/D2	29
436/D2	30
491/A4	31
491/C4	32
491/D4	33
491/E4	34
491/B5	35
491/A6	36
491/C5	37
491/C6	38
SPARE	39
SPARE	40
491/A9	41
491/B9	42
492/E2	43
492/E2	44
492/E3	45
492/E4	46
492/E4	47
492/E5	48
492/E5	49
492/E6	50

REFERENCE	X52 CON & PROTN CKTS.
492/E7	51
492/E8	52
492/E9	53
492/E10	54
SPARE	55
SPARE	56
493/E5	57
493/E5	58
493/E7	59
493/E7	60
494/E3	61
494/E4	62
494/E4	63
494/E5	64
494/E5	65
494/E6	66
494/E5	67
494/E7	68
494/E7	69
494/E8	70
494/E8	71
494/E9	72
494/E10	73
494/E9	74
495/B2	75
495/E2	76
495/B4	77
495/E4	78
495/B5	79
495/E5	80
495/B7	81
495/E7	82
SPARE	83
SPARE	84
SPARE	85
SPARE	86
SPARE	87
SPARE	88
SPARE	89
SPARE	90

REFERENCE	X42 DC CKTS.
416/B3	1
416/B3	2
416/C3	3
416/C3	4
416/D3	5
416/D3	6
429/B3	7
SPARE	8
SPARE	9
SPARE	10
432/A4	11
432/A5	12
433/B2	13
436/B2	14
432/A1	15
SPARE	16
SPARE	17
437/B4	18
437/B4	19
SPARE	20

REFERENCE	X53 CON & PROTN CKTS.
498/E1	1
498/E1	2
498/E2	3
498/E2	4
498/E2	5
498/E3	6
498/E3	7
498/E4	8
498/E4	9
498/E4	10
498/E5	11
498/E5	12
498/E6	13
498/E6	14
498/E6	15
498/E7	16
498/E7	17
498/E8	18
498/E8	19
498/E8	20
498/E9	21
498/E9	22
498/E10	23
498/E10	24
SPARE	25
SPARE	26
SPARE	27
SPARE	28
SPARE	29
SPARE	30
SPARE	31
SPARE	32
SPARE	33
SPARE	34
SPARE	35
SPARE	36
SPARE	37
SPARE	38
SPARE	39
SPARE	40

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY JKR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED _____
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

TERMINAL BLOCK REFERENCE

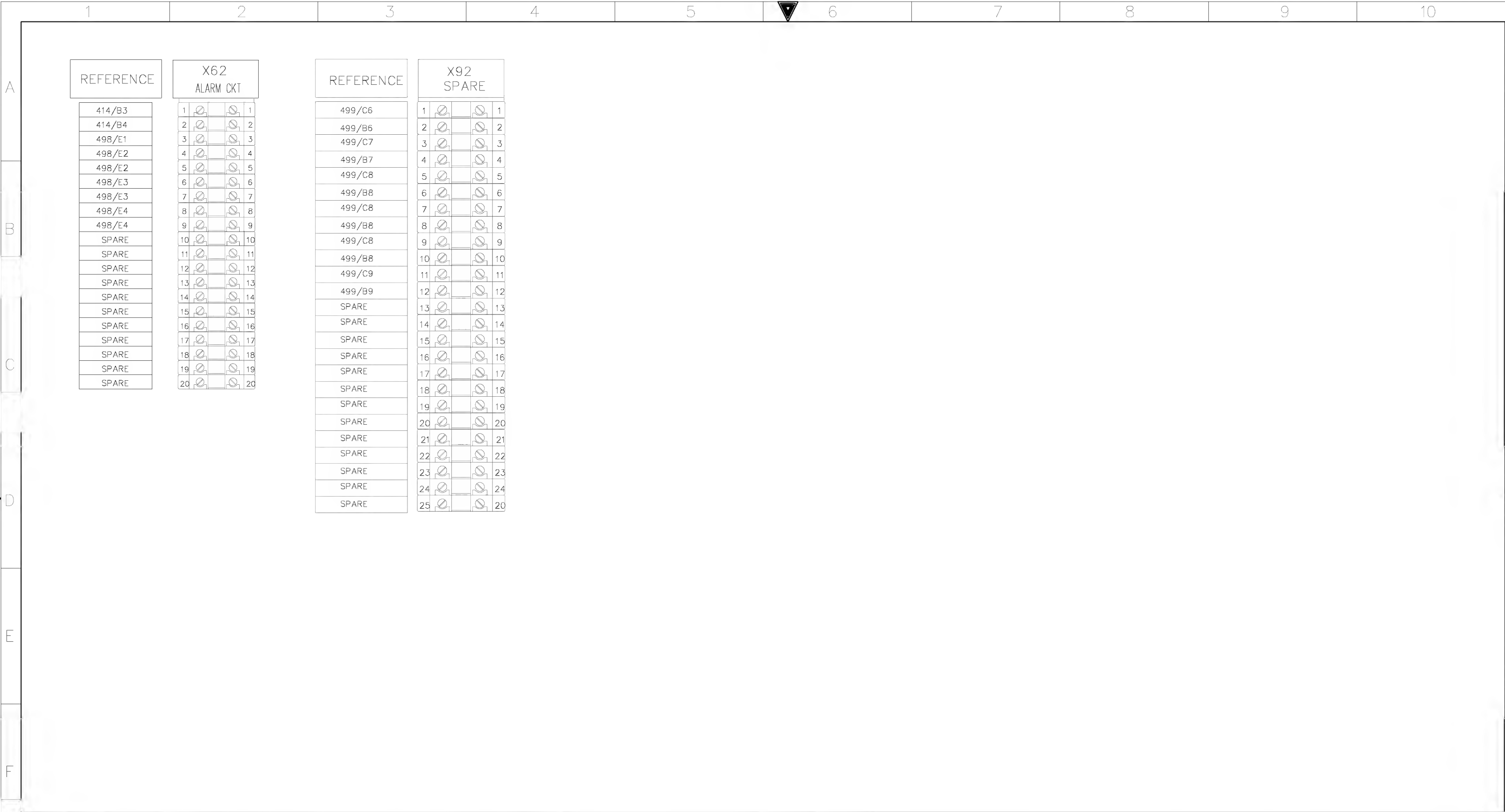
132/13.8kV GT-1 RELAY PANEL-2 +R05.2


S/S 8709-132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322928	SHT 506	CONT. 507
				01



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		TERMINAL BLOCK REFERENCE		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>					
01	13 49	FACTORY ASBUILT	DRAWN BY RIZ		CHECKED BY JKR		132/13.8kV GT-1 RELAY PANEL-2 +R05.2		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY					SHT	CONT.	
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA					-	C421	